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Textile World

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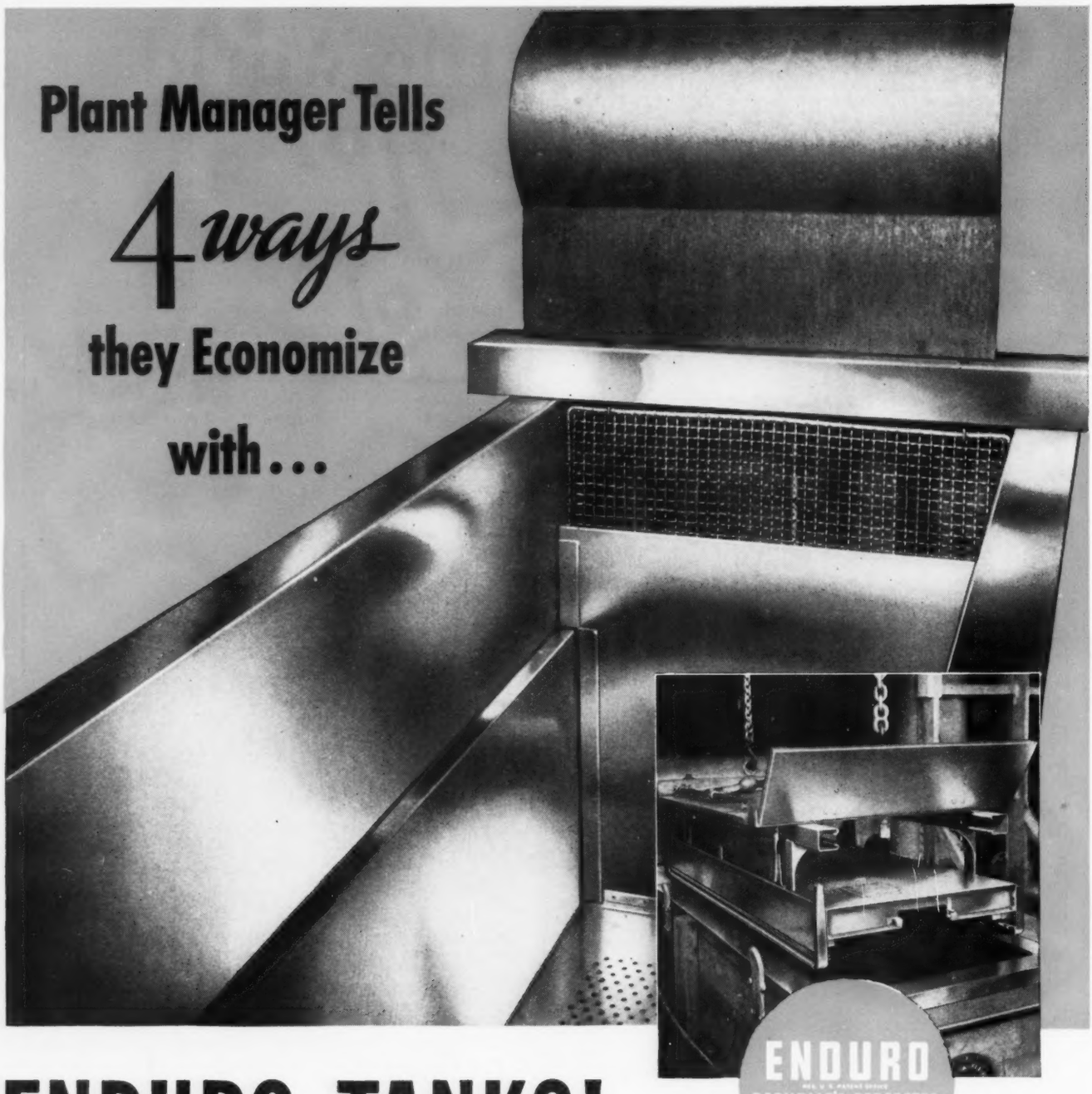

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Textile World

MARCH, 1938

DOUGLAS G. WOOLF, *Editor*

The Wagner Act MUST Be Changed!

LAST month, we stated that there are just two things business wants and should have out of the present session of Congress: revision of the undistributed profits tax, and revision of the National Labor Relations Act.

The best information from Washington seems to promise action on the first of these two "musts". We hope it will be decisive enough to remove at least the present brake on plant modernization and expansion.

The most dramatic development of the last month was the appeal by the A. F. of L. to Congress urging the repeal or revision of that tax. Industry, labor and the public are now in solid agreement. What are Congress and the Administration waiting for?

•

On the second "must," we feel less hopeful of action at this session—but no less assured of the urgency of the case.

Over two years ago (February 1936) we stated on this page, under the caption "It Doesn't Make Sense," that the discord created by the succession of charges, counter-charges and hearings under the N.L.R.A. was exactly the opposite to the spirit of harmony which a "labor relations" act should be expected to produce.

We pointed out, first, that the points of difference which always have existed, and always will exist, are lifted out of their local status and become national issues; second, that when the complaint reaches the hearing stage, the chances of a really fair shake for the company against the union are slim, due to the fact that the representatives of the National Labor Relations Board assume the attitude of prosecuting attorney; and, third, that when and if an election is held, the chance of a square deal, this time for the employees, is again remote.

Today, we reiterate those statements with added emphasis due to the experience of the last two years.

However, there is something more than this fundamental unfairness, serious though that is. Having attended several N. L. R. B. hearings in recent months, we are conscious of a myriad of individual resentments which the operation of this act is creating—the cumulative effect of which threatens the whole fabric of industrial relations in this country.

We can mention only a few: Bitter enmities between families and between erst-while friends are being created out of the most unimportant details imaginable. Community unhappiness is being aroused—and unrest is the keynote before, during and after the hearings. Smart-aleck attitudes of attorneys for the Board, and apparently endless sufferance of those tactics on the part of the examiners, are making the trials a public disgrace. The most apparent lies are given credence and built up into major causes. Local lawyers are given opportunity for a racket in the form of taking cases on the chance of a share of the back-wage awards. Once "liberal" manufacturers, after undergoing weeks of unfair treatment, become inevitably reactionary. These and dozens of other calamities are the product of the N. L. R. A. and the N. L. R. B. in hundreds of communities.

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Whether the board is right or wrong in its administration of the act is not the important issue now. After the Supreme Court upheld the act we termed it "constitutional—but still lousy." Similarly, if the board is acting within its rights, then it is helping to show just how lousy the act is.

Secretary Roper's Business Advisory Council has suggested certain excellent changes in the act. Their adoption would help employees, employers, and—eventually—the cause of organized labor itself. Industry should get behind these recommendations and demand their adoption. In fact, it is about time for a demand or two to be coming from this quarter.

British Trade Agreement

Draws practically unanimous opposition from textile industry

By BLAINE STUBBLEFIELD
Washington Correspondent, TEXTILE WORLD

We gave our Washington correspondent a tough order this month. "Tell us all about the U.-K. agreement," we said. An apparently endless correspondence then ensued, the net of which was a conviction that to "tell all" about that agreement —even if it were possible to do so, which it isn't—would take a special issue. So we revised our request and asked him to give us the highlights: the main points pro and con, and the textile industry's case. The result is this article.—Editor.

AROUND hundred items of textile fibers and manufactures—covering the whole range of the industry except raw cotton—are listed for possible import tariff reduction under the State Department's forthcoming reciprocal trade agreement with the United Kingdom. Applications for hearing before the Tariff Commission's Reciprocity Information Committee closed Feb. 19. Hearings begin Mar. 14. Representatives of the industry, both management and labor, will stand almost to a man against adding more foreign competition to the industry's present problems. Listing of items for consideration does not necessarily mean that import rates will be lowered. It is remotely possible that there will be no reduction on any textile items. Certainly none will be raised.

Under the reciprocal trade amendment to the Tariff Act of 1930, the State Department has already concluded 16 "most-favored-nation" agreements with foreign countries (seven in Europe, eight in Latin America, and one in North America) covering about 40% of our foreign trade. Even though one of these pacts is with Canada, one of our two best customers, the Anglo-American agreement will be the capstone of the New Deal's foreign trade policy, and the result will mean its eventual success or failure.

The "most-favored-nation" agreement plan is very simple. The United States enters into a deal with a given country which is the chief supplier of one of our imports. England, for example, is the chief supplier of woolen imports to this country. If we agree to lower the import duty on woolens, England agrees to lower her import duty on something of which we are the chief supplier to her in similar value. After that, having made that agreement with the biggest supplier, we extend the same rate on woolens to any and all other countries.

The exception is that the State Department is empowered to declare ineligible any country that may discriminate against us. It did so declare Germany and Australia. Australia has since been reinstated. So Germany is the only country in the world that does not get the benefit of all tariff reductions under all reciprocal trade agreements.

The proposed treaty is with the Government of the United Kingdom and with that Government on behalf of Newfoundland and the British *Colonial* Empire. Thus Canada, Australia, India, and the countries under "British influence" are not included. American wool growers, and manufacturers of wool products, are strongly urging that this country negotiate an agreement with Australia now, in coordination with the United Kingdom pact, so as to avoid an interim of uncertainty regarding raw wool imports.

Psychology Behind Policy

The Government's reciprocal trade policy is based on the proposition that world economic distress is the cause of war. Following the world war, as mechanization spread to previously hand-craft countries, there was a largely-bilateral struggle among most countries for trade advantage. Countries deprived of their resources made strenuous efforts to achieve self-sufficiency at any cost. Germany's registered-mark barter plan spread to other countries as the depression increased. Exchanges were manipulated. Meanwhile, Hull policy supporters say, the United States contributed to economic war through rising protectionism.

"We cannot remain prosperous in a poverty-stricken world," is the State Department's key-note. "For us, as for any nation, economic isolation would inevitably mean increasing impoverishment, with ever-growing regimentation, more and more unemployment . . . " Therefore the Hull program asks one thing: the lowering of international trade barriers.

But Industry Fears Damage

One of the Government's main objectives in the present negotiation is to get concessions on agricultural produce. The United Kingdom is far and away our best customer for farm surplus, and if favorable rates can be obtained, this country would realize, in this particular field, an important gain in advantage against low-cost competition by other countries. But many critics do not believe that England will take our cotton rather than Egypt's and India's, and that of other competitors. And they fear the Government is so intent on securing an outlet for cotton and other crops that unjustifiably heavy concessions will be made with resulting serious damage to industry.

When the New Deal was young and the big depression was upon the land the public and business in general welcomed the Hull program as an effort to improve the scrawny market for goods. The United States Chamber of Commerce approved it, and has not revoked its approval, although the board is now in disagreement on that issue. Opposition, in the main, is coming from industries that will be adversely affected by downward revision of rates. And more business is so affected now than ever before because our trade with the United Kingdom is relatively big-league stuff.

Arguments of affected industry against the U.-K. agreement and the whole program are too many and varied to outline here. But a statement by the American Tariff League neatly sums up its point of view: ". . . If we have a tariff high enough to protect us from the modernized production of low-wage countries, we eliminate imports from the comparatively high-wage countries. If we have a tariff low enough to admit competition from the comparatively high-wage countries, it is too low to protect us from the competition of the

low-wage countries. . . ." The single rate principle on which our tariff is based needs revision; a two-column tariff would distinguish between labor costs of competing countries.

The acid test of the value of the reciprocal trade policy would seem to be results thus far achieved. But the results are not easy to demonstrate. Trouble is, no doubt, that all opinion and figures come from one partisan or the other. Mr. Hull says the opposition talk is ". . . sinister propaganda, designed for narrow and selfish reasons. . . ." The opposition says that the improvement in our foreign trade is due almost entirely to higher prices and better world conditions. A fairly agile economist can prove either argument.

The Textile Opposition

Seemingly most active resistance to reduction of rates on imports of textile goods from Britain is headed by Congressional delegations from the New England States. While most opponents are talking only to the Tariff Commission and the State Department, the New Englanders are invading the White House and storming Capitol Hill. Mrs. Edith Nourse Rogers, Congresswoman from Massachusetts, has a resolution before the House for the appointment of a seven-member committee to inquire into the operation of all trade agreements entered into by the United States with foreign governments.

The Wool Triangle

The American - British - Australian wool triangle is badly out of kilter. Wool growers and processors everywhere believe that the Administration simply did not think straight. It seems obvious to them that to negotiate a treaty with Britain on wool manufactures first, and then, after the industry has settled down to whatever reduced rate might result, to begin over again by making a deal on Australian wool, is putting the trailer before the car. The fact is, the industry would not settle down. Processors would have already begun to withhold orders waiting for the Australian rate. The industry would stagnate; growers and labor would suffer in consequence. Wool growers and processors are hopeful that Secretary of Agriculture Wallace will appeal to Secretary Hull for an immediate Australian pact.

Woolen and worsted manufacturers tell the Tariff Commission that they are over-equipped to meet the entire domestic demand, and that it would be disastrous to encourage England and Japan to pour more of these goods into the choked market. The inevitable result, they believe, will be a backslide from the gains made by

PRO. . .

Cordell Hull, Secretary of State, father of the reciprocal trade agreement program, has an almost evangelical zeal in his espousal of the ideal.

CON. . .

Representative of the united opposition of the textile industry to the U.-K. agreement is this appearance of Fred W. Steele, speaking for the National Association of Cotton Manufacturers, at a protest meeting called in Boston by Gov. Hurley of Massachusetts.

textile labor in hours, wages, and working conditions. For it is entirely on a labor standard basis that other countries compete against this country. It is argued also that cutting the tariff on wool and wool products which are of first importance among war supplies, will weaken this country's defense resources.

Wool underwear from England is of little importance statistically, except in that it serves to illustrate a point. Total importation of these goods is less than 2% of domestic production. But it might so happen that a cut in the tariff rate would let that product through the crack, which would spread and let in a flood. Exactly that happened in the case of wide elastic fabrics after the agreement with France in 1936. The French increase was unimportant, but Japan, acting under the "most-favored-nation" clause, jumped her sales to us 350 times over, and at prices no home manufacturer could hope to touch. In the case of lace the French treaty let in a flow of goods directly from France that worked severe hardship on domestic lace makers.

The Cotton Textile Case

The cotton textile industry urges that no tariff reduction be made that will cause any loss of production by domestic cotton mills. Cotton goods imports increased from 61,000,000 sq. yd. in 1928 to 147,000,000 in 1937. In the same period exports dropped from 545,000,000 sq. yd. to 235,000,000 sq. yd. Evidently the tariff on cotton goods is already too low, considering our wage standards, says the industry.

Cotton textile merchants advise the Commission that competition and freedom from any monopolistic practices insures domestic consumers the lowest possible prices commensurate with American living standards. Any reduction in import rates that might be made would be of little benefit to England, but Japan, with her extremely low labor costs, would further pyramid her phenomenal sales of cotton goods to this country.

Cotton growers are accused of urging the U.-K. agreement as a remedy for their "blunder" in getting Congress to peg prices, which lost them a big slice of their foreign markets. Suppose England does trim her rates on American farm produce, will she buy more American cotton? England agrees only to a tariff rate; she enters no contract to buy. World prices delivered, govern cotton sales, not tariffs.

All Washington is buzzing "U.-K. agreement." Crowded offices in the State Department and the Tariff Commission are working feverishly and getting a British accent. The Reciprocity Committee is up to its ears in written testimony and the paper snowstorm continues. Wool manufacturers will be heard March 16-17, cotton manufacturers March 21-22.

Everybody is asking questions. Will the President call for Australian negotiations? Is this deal part of an Anglo-American military alliance? Just what is Joe Kennedy doing in London? When will the agreement be completed? To answer the last one roughly: Late spring or early summer.

(See Editorial on Page 85)

F.T.C. Policy Stiffens

Fiber identification hearings held on silk and wool

From TEXTILE WORLD'S *Washington Office*

ONE of the highlight aspects of the present relationship between the Federal Trade Commission and the textile industry is the Commission's increasingly strong hand with respect to trade practices.

Constant observers in Washington say that George McCorkle, director of trade practice conferences, is of a firm turn of mind but is sometimes uncertain of his position in hearings. Mr. McCorkle's wavering on proxy voting, and the practical meaninglessness of any voting at all during the recent silk conference, were pointed to by these observers as typical examples. But behind the scene is Henry Miller, assistant director of trade practice. Mr. Miller is young, bright-eyed, and inclined to think business needs more spanking than the Commission gives it. That firm hand which trade has been noticing belongs to Mr. Miller. He makes no statements as to his policy, but when other members of the FTC staff are asked, they say, "Use your own judgment."

Still back of Mr. Miller and the Commission is the expectation of more potent law. The FTC Act as it stands permits the Commission to protect business and the public from the evils of unfair competition. But it cannot go after evils not resulting from competition, such as collusive price understandings. The Lea bill, likely of enactment, will greatly expand the Commission's power. Opinion is that the more compulsion-disposed chiefs of the Commission are already discounting the future.

There is little cause, some say, to fear that FTC will become much more peremptory than in the past. In general the Commission stands high with business and ranks among the most sagacious agencies in Washington. The commissioners all want to maintain that reputation. Furthermore, FTC, like most other independent Government agencies, is trying to keep from being hauled aboard President Roosevelt's government reorganization omnibus. FTC knows that respectable business is the best friend it has.

Issues at Silk Conference

The silk industry will operate willingly under identification rules adequate to eliminate public deception and unfair competition. The rayon industry wants rules similar to its own imposed upon silk. These points were made clear at the FTC hearing on proposed silk identification rules held March 4. At the hearing a silk representative challenged the rayon people's right to be heard, or even to be present. Mr. McCorkle rejected this suggestion by ignoring it.

Prior to the conference, it seemed likely the National Federation of Textiles would lead the discussion. But International Silk Guild representatives instantly offered their proposed rules when the meeting opened. The Guild seemed to be carrying the ball the rest of the day.

Just what silk rules will be promulgated would be hard to predict. The Commission sprang a surprise when it fixed rules on rayon. But it surprised itself, too. For Washington hears now that the rules didn't work. They're so full of burdensome detail that few cutters and distributors can keep up with them. They're not by any means widely observed. And some rayon people say the rules are not stopping such misrepresentation as existed. So FTC undoubtedly is inclined to listen to the voice of experience in action on the other fibers.

With verbiage shorn off, discussion at the silk conference developed three important points of controversy: First, whether fabric terms, such as georgette, chiffon, etc., should be prefaced by law with the term "silk," which many leaders in both silk and rayon divisions favored; second, the discussion about the words "pure dye" brought out that the public thinks they mean simply pure coloring matter. Only 15 people in 100, one "surveyor" contended, know that the words have to do with weighting. What seemed to be accepted as the most intelligent suggestion was to abandon this old but confusing terminology and use simply "pure silk." Some authorities said that labeling the percentage of loading would be unfair to the manufacturer, and would not help the consumer. The rayon people insisted that weighting be brought out in broad light. Third, nobody wanted to assume the responsibility for labeling. Everybody wants to pass it back to the manufacturer. The old story about the garments with tags all over them came out again. The Commission itself will have to figure out the technique of labeling, because it looks like the Commission's baby.

Wool Labeling Conference

The calling of the March 8 trade practice conference for wool goods, brought up after some years of quiescence the old virgin vs. reworked wool controversy, freshened by problems of rayon mixtures. The National Association of Wool Manufacturers at first advised FTC that it declined to participate for the reason that the wool-textile industry considered its existing standards for labeling adequate; that the industry as a whole did not see the need for any such trade practice conference; and that none of its accredited spokesmen had been consulted. The raw wool interests, women's clubs and other consumer groups had asked for the conference together with Julius Forstmann, president of the Forstmann Woolen Co., who recently resigned from the N.A.W.M. because of disagreement on labeling matters. Later the N.A.W.M. offered its cooperation, but sought a postponement to permit fuller opportunity of cooperation. This was granted on Col. C. F. H. Johnson's motion at the hearing to turn the details over to a committee of 10 and reconvene on Mar. 29. The committee represents the wool growers, manufacturers, cutters, retailers and consumers.

The wool industry has been operating under a commercial labeling standard of the National Bureau of Standards. Certain members of the industry believe themselves governed by the rayon rules insofar as fabrics containing rayon, other than as a decoration, are concerned. In other quarters the pending hearing by the Senate committee studying wool marketing is thought likely to result in labeling legislation. There is also a labeling bill in the hands of Senator Schwartz of Wyoming. No wonder the industry is uncertain who's the boss.

Wool manufacturers show no desire to conceal the content of their fabrics, but they agree that matters of definition, administration and useful guidance of the ultimate consumer involve many complications. All wool manufacturers trust that no expensive plan will be devised which might add to the cost of doing business.

(See Editorial on Page 85)

Madness in Milltown

What attendance at N.L.R.B. hearings does to an innocent bystander

By JACK CARD

Back from a trip through the South where he attended several N.L.R.B. hearings, Jack Card submitted to us the following composite picture of such hearings. It sounds screwy to us—but Mr. Card assures us we don't know the half of it.—Editor.

Scene: A Federal Court-Room in Milltown, S. C.

Dramatis Personae: Examiner Wood (sometimes called Your Honor), official representative of the National Labor Relations Board.

At one table—J. Goldberg, chief counsel for the board; Max Harris, local organizer for the C. I. O.; Luke Wall, Ben Bernitz, and Otto Oshkosh, local "share-cropper" lawyers.

At another table—Russell Jones, attorney for Smith Cotton Mills, Inc.; Joseph Brown, mill superintendent.

* * *

EXAMINER WOOD: Mr. Goldberg, will you present your case?

J. GOLDBERG: Mr. Examiner, we have here a situation where 76 employees of the Smith Cotton Mills, Inc., were discharged for belonging to a union. I first call Sam Purcell.

(*Sam Purcell is duly sworn.*)

MR. GOLDBERG: Mr. Purcell, will you tell what happened on the morning of July 13, 1936, at 10 o'clock in the office of Mr. Brown, the superintendent of the Smith Cotton Mills, Inc., when Mr. Brown told you that you could never get a job again in the Smith mills, even if hell froze over, because you belonged to a union?

RUSSELL JONES (*attorney for the mill*): Your honor, I object on the ground that my friend is testifying for the witness.

EXAMINER WOOD: Objection denied. Proceed.

MR. GOLDBERG: Now, Mr. Purcell, will you answer my question?

MR. PURCELL: Yes, sir, that's how it was.

MR. GOLDBERG: That's all. Your witness.

MR. JONES (*cross-examining*): You say you had a conversation with Mr. Brown on July 13, 1936, at 10 o'clock, in his office?

MR. PURCELL: Well, now, I don't rightly remember when it was.

MR. JONES: But you testified to that effect a minute ago....You also say that Mr. Brown said you could never get a job in the Smith mills because you belonged to a union?

MR. PURCELL: Well, now, I don't rightly remember.

MR. JONES: But my dear sir you remembered this just a minute or so ago when Mr. Goldberg asked you. Now all I want to do is to find out what you remember of your talk with Mr. Brown.

MR. GOLDBERG: Your honor, I object on the ground that my worthy friend is intimidating the witness.

EXAMINER WOOD: Objection sustained. Proceed.

(*This goes on for days, or possibly weeks, until all 76 employees are heard. Finally, the Smith Cotton Mills, Inc. gets a chance to present its side of the case.*)

MR. JONES: Your honor, I call first on Joseph Brown.

(*Mr. Brown is duly sworn.*)

MR. JONES: Do you know Sam Purcell?

MR. BROWN: I do.

MR. JONES: Was he ever employed at Smith Mills?

MR. BROWN: He was.

MR. JONES: Is he employed there at present?

MR. BROWN: No, sir.

MR. JONES: Why not?

MR. BROWN: He, and the 14 other members of his department, were let go when that department was discontinued due to a change in our product.

MR. JONES: Did his union affiliation have anything to do with his discharge?

MR. BROWN: Positively not. I did not even know he belonged to a union.

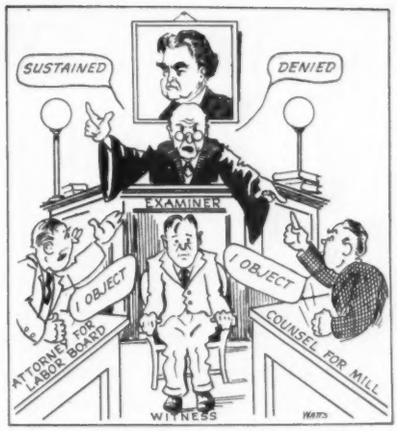
MR. JONES: Now, do you recall a conversation with Mr. Purcell on the morning of July 13, 1936?

MR. GOLDBERG: Mr. Examiner, I object on the ground that my friend is testifying for the witness.

EXAMINER WOOD: Objection sustained.

MR. JONES (*in a tired voice*): All right. Your witness.

MR. GOLDBERG: Now Mr. Brown, do you recall a conversation with Sam Purcell on the morning of July 13, 1936?



MR. JONES: I object, on the same grounds that my worthy friend cited a moment ago.

EXAMINER WOOD: Objection denied. Witness may answer.

MR. BROWN: I do.

MR. GOLDBERG: Do you remember telling him he would never get a job with Smith Mills, Inc., because he belonged to a union?

MR. BROWN: I do not.

MR. GOLDBERG: Will you tell the examiner just what conversation you had with Sam Purcell on the matter of the union?

MR. BROWN: He asked me if I thought it was a good idea for him to join the union and I told him that that was his own problem which I couldn't help him with.

MR. GOLDBERG: Then you admit that you discussed the union with Sam Purcell?

MR. BROWN: Yes—but merely....

MR. GOLDBERG: Confine yourself to answering the question....That's all.

(*This, too, goes on for days or weeks until the mill officials are questioned on all 76 cases.*)

* * *

DECISION

The decision as finally handed down by the National Labor Relations Board pointed out that of the 76 employees whose discharge was in question, 25 had never worked there, 25 were not discharged but still worked there, and 25 had not belonged to a union and consequently such affiliation could not have been a factor. On the 76th case, however, that of Sam Purcell, the Board's decision was to the effect that Mr. Brown, superintendent of the mill, had intimidated the employee by discussing the union with him—and therefore the mill was sentenced to pay Purcell back-wages due him, to consent to an election, to buy a new rug for the local C. I. O. headquarters in Milltown, and to send John L. Lewis an eye-brow brush for Christmas.

What's Ahead?

An economist looks into the future and finds outlook favorable

The following article represents an abstract of an informal talk given by an outstanding economist to a group of editors, including the editor of this publication, the latter part of February. Since the economist did not have an opportunity to go over the abstract he did not want his name used with it, but it can be stated that he is a man of national reputation. We feel that many of the points he emphasizes should be of interest to our readers.—Editor.

FEBRUARY has been a dark and dreary month, full of discouragement. Most appraisals of the business outlook made in February will prove to be too pessimistic rather than too optimistic, due to this atmosphere. In this sense, the situation is the reverse of what it was this time last year.

Political Influences

Reviewing political influences on business, it is interesting to contrast the talk and the action. Most of the talk has been alarming, whereas the action, to this observer, has been encouraging. By action I refer to five specific points: (1) housing; (2) farm bills; (3) railroad rate decision, which is just around the corner; (4) tax revision (to come); (5) change from deflationary to inflationary monetary policy, which has already started.

Add those up and you find the net is on the favorable rather than on the unfavorable side. I will expand on each of them a little.

Housing: I believe the new act is going to take hold very considerably and that in the spring of the year we will see the start of a lot of apartment-house construction—above that of a year ago, possibly 50% above. I am more uncertain as to the effect upon single dwelling construction, so far as this spring is concerned. However I expect this housing act is going to click on the single dwelling situation in time. I believe the Federal Housing Administration will launch a tremendous propaganda drive—a "colossal, stupendous" drive—to sell the idea of small homes. Therefore, my net on the influence of the housing act is certainly favorable.

Farm Bill: This has all the earmarks of a wretched and abominable type of legislation. But that opinion has no bearing on the effect of the act on the 1938 business picture. What it does is to limit very drastically the cotton crop and the amount of the old crop coming on the market. Last year was exactly the opposite. This year, a smaller crop will be coming on the market when the two-year textile cycle will be getting under way for improvement. Therefore I believe that the price of cotton will rise to 10¢ and that the new crop will average above 10¢. Furthermore, given bad weather, 12 or 15¢ cotton is in the bag.

There is nothing more constructive as a business influence than a better price for cotton. A turn-around of the cotton industry in 1938 would seem to me to be one of the most important events ahead of it. That trend is started—at least to the extent that cotton has gone steadily up in recent weeks. Therefore this farm act effect, with particular reference to the cotton part of it, is a favorable factor.

Railroad Rate Increase: This of course is a matter for conjecture but most guesses indicate an increase of 10 to 13%. As such, this is a favorable factor.

Tax Revision: This is favorable so far as it goes. The tax revision bill as outlined by the Vinson Committee in the House, will be the minimum amount of revision. The maximum will not be known until the Senate takes action. I believe the maximum revision will be much larger than the minimum. I also believe the tax revision will provide in part an answer to the problem of where capital is coming from to enable business to go ahead. I think it may release as much as a billion dollars. Therefore this factor is favorable also.

Monetary Policy: The Administration is now pointed in the direction of a reversal of the deflationary policies of 1937. This will take from six to nine months. Therefore I don't expect this change to help immediately, except to a slight extent psychologically.

The reason for the change in monetary policy is interesting. It was desired to get through a farm bill and in order to get such a bill through, low farm prices were essential. Farm prices index was 91 a year ago and is 70 today—whereas industrial prices fell only one-third that amount in the corresponding period. The farm price decline has had a bearish effect on all business. Now that the farm bill has been passed, the Administration wants to see farm prices go up.

Another reason for the change in policy has been the pressure from Congress demanding inflation. All the radical groups have been meeting together toward that end. I have been using the word "inflation" but don't believe the steps taken point toward a wild run-away inflation. I believe we will get a teaspoonful of inflation which may be blown up by ballyhoo. This country needs an expansion of $2,000,000,000 of bank deposits in 1938. We are unlikely to get more than that—and that's only 5%; consequently it can hardly be called run-away inflation. On the whole I think that this factor is a favorable one.

Specific Business Trends

Now, as to more specific trends related to business:

Inventory Problem: That is fading out, because in retail trades it has been corrected and in manufacturing circles progress has been made so that by April most individual company situations should be normal or sub-normal. I know many large corporations that are extending ahead their commitments for such materials as cotton, rubber, etc.

Automobile Business: This was one of the worst inventory spots. Within the last ten days (talk was given, Feb. 18) the state of mind in Detroit has been improving. In recent weeks, used cars have been moving and as a result production schedules for March have been

stepped up in some cases. There is a likelihood of more than a seasonal pick-up in the automobile business this spring. I don't mean that we are going to get back to a 5,000,000-car-a-year basis, but I do mean that I look for this change to pull out of the hole an industry that operated on a 2,000,000-car-a-year basis from the middle of January to the tenth of February.

Building Activity: Figures of building activity show performance to be much better than the gloomy talk predicted. I believe building in the spring of this year is not going to be any washout—and that in fact it will be reasonably satisfactory in total volume.

Retail Trade: A late Easter is a very favorable development. I believe retail sales will be above a year ago, in number of units and in dollar volume.

I adhere to the view that we will get a pick-up of business in the spring, that it will carry steel capacity to 50% or better, and that it will push the Federal Reserve Board's index of industrial production 10 points above the low level.

A Broad Look Ahead

I think it is helpful to take a period of time as a unit and consequently I am taking the period of ten months from Nov. 1, last, to Aug. 31 of this year. It is my view that that period exists for the purpose of correcting many troubles in inventory, etc., but also as a period in which the foundation is being laid for a recovery of a more substantial nature. However, I don't believe that we shall come to the actual upswing of that really sound recovery until after the end of the ten-month period —that is until after Aug. 31 next.

Therefore I think of the developments in this ten-months period not as disconnected events but as parts of a regular trend. Naturally it will have its ups and downs, but I think we can see a rhythm in it. In November came the climax of the perpendicular decline. In January we had a rebound, statistical and psychological. Toward the end of that month, this rebound started to fade out and then we were headed into the dark and dismal period in February. Somewhere between here and the spring we are due for another rebound—a January type of rebound but probably stronger. In fact I see no reason why it should not carry through against the seasonal trends in the summer. Then we shall probably have a drift back. But after the summer, I believe the foundation will have been laid and a real recovery should set in.

Washington Prospect

Farm act — Processing tax —Wage-hour bill

From TEXTILE WORLD'S *Washington Office*

PROCESSING taxes on cotton are a 50-50 possibility. The rate would be two cents a pound, and the proceeds would go into treasury. Then, to get around the Supreme Court, another bill would provide 2c. parity payments out of treasury on some 50% domestic consumption of cotton. There is a definite demand from farmers for price adjustment payments, and a definite response on the part of Congressmen from the South. The farm law invites a processing tax. The President spoke favorably of it. Secretary Wallace later urged it. No bill has yet been introduced, but Senator James Pope of Idaho, co-author of the new farm law, is getting it ready.

The March 12 referendum under the farm law on tobacco and cotton undoubtedly will authorize market quotas to be set up by the Secretary of Agriculture. Acreage quotas are not compulsory, but market quotas are. Therefore, most if not all cotton farmers will plant only the Government's alloted acreage. Thus a "normal" crop, other conditions being equal, is assured. And somewhat higher cotton prices are in prospect.

Cotton growers stand to collect a pretty penny. The Government announces conservation payments of 2.4c. per lb. on the normal yield of the acreage allotment. If the price is 10c., this pegs the farmers' take up to 12.4c. On top of that it is possible Congress will vote a two-cent processing tax for funds from which to make price adjustment payments toward parity.

The world price of cotton is tending downward as a result of new production areas and other causes. World carry-over will be high. Curtailment of American acreage will have a lifting effect on the world price. On the other hand, American cotton farmers, with supplemented incomes, may be willing to accept a slightly-trimmed price.

Wage-Hour Bill

The 21 members of the House Labor Committee have approximately 21 different solutions for the wage-hour impasse. As this is written a Labor sub-committee is trying to coordinate the assortment into a single plan which they hope the President will accept. Labor Committee Chairman Mary T. Norton's two recent bills got nowhere. One was a simplified version of the re-committed Black-Connery bill, still calling for 40–40 standards. The other would require that NRA code wages be maintained with a 40-hour week. Both bills would set up an Administrator in the Labor Department. Labor observers here believe that Mrs. Norton and Secretary Perkins put their heads together on that. Rep. Robert Ramspeck, of Georgia, who ranks next to Chairman Norton on the Labor Committee, and who is gaining some prestige as a real student of the problem, is convinced that any bill passed this session must be limited to the sweat-shop-and-wage-chiseler level. Mr. Ramspeck recommends, as others have done before him, that the Federal Trade Commission Act be amended with a declaration that wage cutting and long hours for competitive advantage are unlawful. FTC would act on its own initiative or on complaint. Question now is whether the President will stand on his broad labor standards program, or lower his sights to admittedly exploited workers. Majority opinion here is that Mr. Roosevelt will lose out this session if he doesn't let down. But he might win next Congress by taking the issue to the people in the fall elections.

New Uses

The Government will help find new uses for cotton and other crops by means of four regional laboratories for which the new farm law authorizes $4,000,000. In addition, $1,000,000 is provided for sales promotion. The new uses section of the old Agricultural Adjustment Act, restricting the use of customs receipts for farm crop promotion, is amended to prohibit spending above 25% of available funds on one farm commodity.

Ellenbogen Bill

Last month's agitation to revive the Ellenbogen textile control bill got no further than some conversation among members of the House Labor subcommittee that took testimony last year. Two or three textile labor men came to town, nibbled around and left. Chairman Kent Keller held no expectation of any action. If the wage-hour drive fizzles out, there will always be somebody to push the Ellenbogen bill along.

High and Low Flats

Causes and remedies for variations in wire length on cotton cards

By E. H. HELLIWELL

MILL MEN and machinery builders, in general, agree that there is a definite condition of high and low flats on cotton cards, due to a variation in the length of the wire on the flats. However, not much information is available on this subject; consequently not much effort is expended in order to remedy the condition. In the following paragraphs will be set forth the types of variation, their causes and some preventives; indications of variation, and ordinary methods of neutralizing the effects of variation; scientific means of determining amount of variation; and some actual observations, with a summary of these observations.

Examinations of various flats taken from cards indicate that there are three general types of variation in wire length:

1. Flat-to-flat variation, where the length of wire on adjacent flats from the same card varies, even though the length of the wire on either flat may be uniform.

2. End-to-end variation, where length of wire on opposite ends of the same flat may vary.

3. Variation due to rounded flats or loss of toe and heel, in which instance the original milling of the bevels with relation to points of the wire from heel to toe has been changed. (See Fig. 1.)

Causes for Variation

There are a number of causes for variations in the length of flat-wire. Flat-deflection is the tendency of the flat to sag at the center, due to its own weight and the manner in which it is supported. From Fig. 2, it will be noted that the actual variation is doubled as the flat moves from grinding position to carding position. Obviously, the greater the distance between the supports of the flat, the more pronounced is the sag, thereby magnifying the variation.

Another cause is dirty flat ends, which easily may be prevented by keeping the brushes in good condition and in proper adjustment. Then there is the possibility of uneven wear on the end bevels of the flat, caused by undue friction between the bevel and the bend. This friction may be alleviated by attaching small square holders to the top stands, one on either side of the card; and placing therein a small cake of graphite or black carbon, which will deposit a lubricating film of finely divided carbon on the contact-surfaces of the bevels. These cakes of graphite which rest of their own weight against the bevels, are to be used only during the grinding process; and the holders may be moved from card to card as the card is ground.

Next there is the condition of slack flat-chain, which results in the flats being out of line when entering the grinding-cradle. This may be corrected by adjusting the stretcher-stands or by removing one or more flats. In the same category, there is the condition of uneven elongation of a flat-chain, which condition may be prevented by adjusting the tension on both sides of the chain, and wiping the link connections with an oily rag periodically. Still another cause of variation may be worn or improperly set cradles, shoes, slides, latches, quadrants, or weight arms. These attachments should be checked frequently.

Dull emery is another source of variation. Ordinarily, emery fillet will grind twenty cards before becoming dull. However at any time that it becomes shiny or unduly greasy and fails to emit a light, sharp hiss on contact with the wire, it should be changed. An occasional cause of variation is the occurrence of hard spots in the wire. When this condition occurs, the card-clothing manufacturer should be consulted. Then the grinding band may be so tight as to prevent the grinding roll from taking the proper position in the stand. Double-looped hooked bands are recommended, and they should be sufficiently slack to allow a slight lifting of the roll from the stand, before starting. Finally, improper setting of the grinding roll may cause variation. The roll should be set to 0.005 in. gage before placing in contact with flat-wire. Additional infrequent causes may be worn bushings, bent or worn shaft, eccentric grinding roll.

Indications of Variation

Indications of flat-wire variation are a cloudy web and a predominance of specks in the web. Another indication is variation in the weight of flat strips; but this will not be detected unless the strips from each

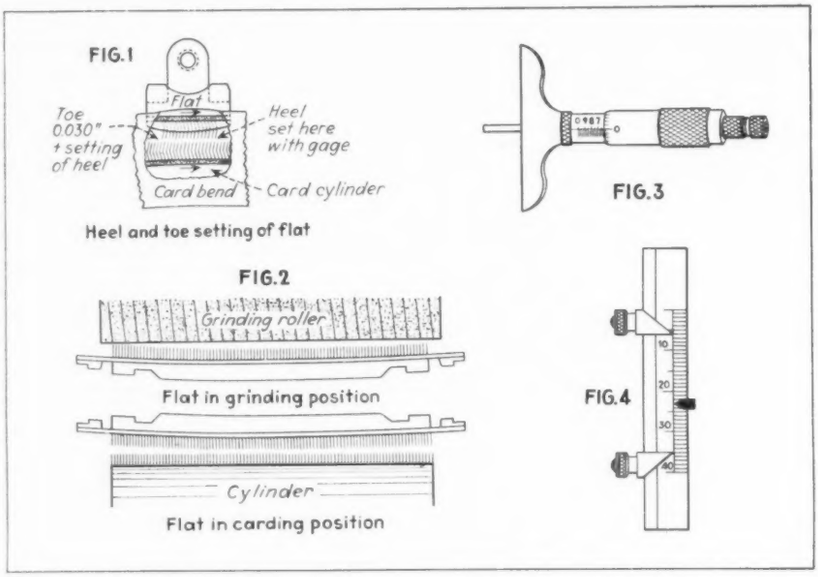


Fig. 1. Heel and toe setting of flat. Fig. 2. Natural deflection of flat. Fig. 3. Micrometer depth gage. Fig. 4. Flat tester. Fig. 1. Saco-Lowell Shops; Figs. 2 and 4, Dronsfield Bros., Ltd.; Fig. 3. L. S. Starrett Co.

individual flat are collected and weighed. The amount of variation in weights will be an approximation of the amount of variation in length of flat wire. Obviously this has reference only to flat-to-flat variation. After the highest flat has been detected, it should be used as a standard and turned from one setting point to another in making the settings. If this is not done, and different flats are used at the various setting points, facing of the higher flats is likely to result. Loss of toe and heel may be detected by the occurrence of wear on the bevels or grinding slides.

Use of Flat-Tester

A precise and accurate method for detecting and determining the variation in length of flat-wire is by the use of a flat-tester. Testing the flats by this method necessitates removing them from the card, at which time they are ground on an off-the-card grinder.

A reasonably accurate means of determining variation, without the necessity of removing the flats from the card, is by the use of a micrometer depth gage (Fig. 3). The base should be placed on points of the wire, and micrometer screw turned until the center blade comes in contact with the bearing surface of the bevel. The reading on the micrometer will be the comparative height or height of the wire from bevels, in thousandths of an inch. Readings may be taken on various flats and compared, in order to determine the amount of variation.

In order to determine variations in the comparative height of the wire at any point on the flat, a straightedge may be placed above the wire, and supported by two blocks of equal thickness resting on the bevel at either end of the flat; the base of the gage is placed on this straightedge and the blade projected downward until the point of the wire is contacted. The differences in these micrometer readings represent variations for different points on the flat. The exact height of the flat-wire at any point may be determined by placing the base of the micrometer on the points of the wire, and extending the blade downward until it contacts the clothing foundation; however, this actual variation is not so important as the comparative variation.

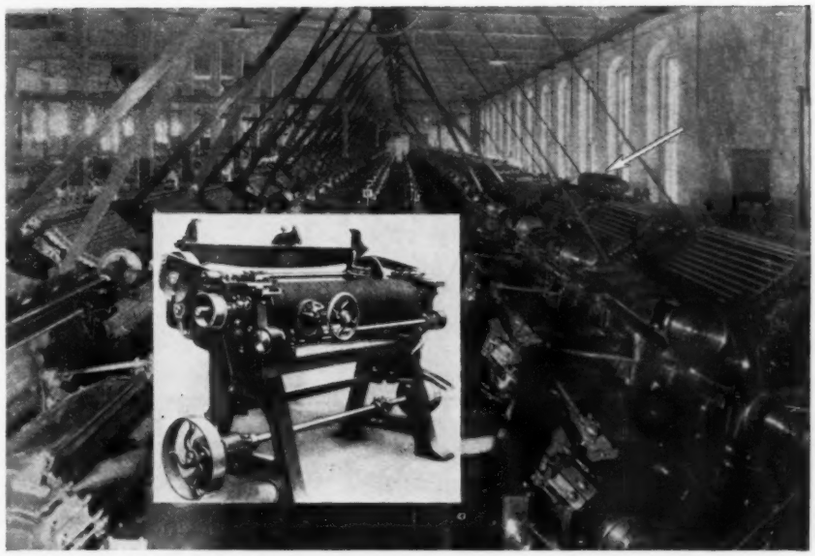


Fig. 5. Grinding the flats on a card (see arrow); off-the-card flat grinder (see insert)

The following actual measurements shown in Table I were taken from flats used in a fine yarn mill and are fairly representative of many such cards in use. These were made on a flat tester (Fig. 4) attached to an automatic flat grinding machine. One indicator scale division is equal to 0.002 in. The last flat given in the table is an extreme case of end-to-end variation. In all four readings, the indicator was set in the center of the scale for center flat reading. Left and right readings show plus or minus from this point. The total variation is the sum of these two readings.

Table II shows flat-to-flat variations of four flats from same card. The low flat was first determined and the other three are plus readings from this low flat. Note also end-to-end variations.

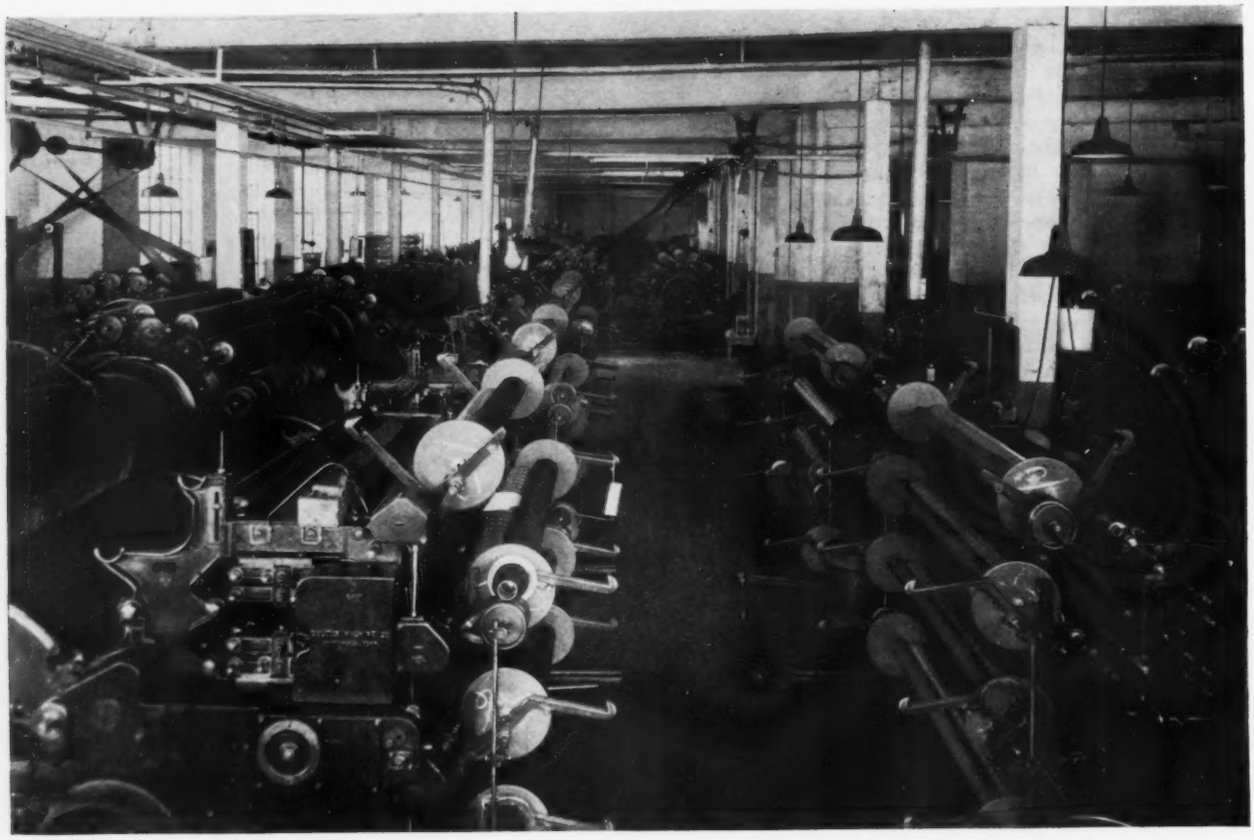
A summary of readings given in the tables appears to show that flat-deflection is not an important cause of end-to-end variation. That deflection would show shorter wire on both ends, due to sag in center of flat while grinding.

Table I. Comparative end-to-end variation in top flats

Left end		Center	Right end		Total end variation	Max. flat to-flat variation	
Indicator reading	Variation from center	Indicator reading	Indicator reading	Variation from center	Left to right	Left end	Right end
16	− 008 in.	20	27	+ 014 in.	.022 in.		
16	− 008 in.	20	25	+ 010 in.	.018 in.		
15	− 010 in.	20	26	+ 012 in.	.022 in.		
The above 3 flats are from the same card.						.002 in.	.004 in.
4.5	− 031 in.	20	36	+ .032 in.	.063 in.		

Table II. Comparative flat-to-flat variation

Left end		Center		Right end		
Indicator reading	Variation from low flat	Indicator reading	Variation from low flat	Indicator reading	Variation from low flat	End-to-end variation
23 Low flat		17 Low flat		14 Low flat		.018 in.
25	+ 004 in.	19	+ 004 in.	14	0	.022 in.
23	0	19	+ 004 in.	15	+ 002 in.	.016 in.
26	+ 006 in.	19	+ 004 in.	14	0	.024 in.
	Maximum variation from flat-to-flat.					
	+ .006 in.		+ .004 in.		+ .002 in.	
	Maximum end-to-end variation.					.024 in.



Recently two new Soutex Machine Co. cards have been installed and ten old cards have been rebuilt and provided with new Scotch feeds and two-cylinder finishers with tape condensers.

Atlanta Woolen Modernizes

Installation of large-package mules and revamping of card room latest steps

REVAMPING of his card room and installation of new large-package mule spinning machines are latest steps taken by Vaughn Nixon, president, Atlanta Woolen Mills, Atlanta, Ga., in an endeavor to put his plant on a thoroughly modern basis and to produce a cloth of uniformly high quality. Gradually over a period of several years, this program of modernization and improvement has been under way. The end is not yet in sight, but much that is worth while has been accomplished.

In Business over 40 years

This company was established more than 40 years ago, taking over at that time an older plant and organization which dated back still further by some 20 years. It ran on a cheap grade of suitings, mostly cotton and wool mixtures. For many years only the cheaper grades were made, but gradually the grade of cloth was improved, and today handsome patterns of all-wool fabrics in many styles are seen in the shipping department, along with some of the older and cheaper grades. Among the products being manufactured and finished are included suitings, both men's and women's top coatings, and institutional cloth. The mill has its own raw stock and piece dyeing departments and a well-equipped finishing department. Today all the material manufactured is being marketed under the mill's own brands, and is being sold direct to the trade. Most of it is handled through Leonard & Keily, New York, sales agents for the mill's products.

In all of the moves made to improve conditions at the plant, two principles seem to have guided the management—economy and quality. In large affairs and in small details this seems to hold true. For instance, the dyeing and finishing departments required a large amount of city water, a metered supply. By drilling a deep well on the mill property and operating a turbine pump, the management has obtained an ample supply of highly satisfactory water for all processing, and even for the boilers. City water is always in reserve and is used, of course, for drinking purposes. Thus, a considerable item of expense was eliminated and the quality of water remained equally as good. Another economy effected in this department was the change in exhaust from the dryers and heaters, which until recently went to the atmosphere, and now goes to the feedwater heater.

Both broad looms and narrow fancy

looms are in use. Crompton & Knowles looms in service are the latest Type W-3 automatics; all Draper looms are equipped with C. & K. heads for fancy designs. Quality work is stressed, rather than amount produced, and any factor bearing on quality is carefully investigated. Special lighting systems are being worked out, and over a part of the fancy looms mercury-vapor lamps have been installed.

Winding

The warp is delivered to the loom on beams from the dresser, where the pattern has been laid and the proper number of ends have been provided. Throughout all preparatory work large packages are being used. All yarn, both warp and filling is being rewound on Universal winding machines of latest design. The No. 60 large-package winder is used for the warp; the No. 90, for the filling. This method reduces time lost in doffing or tying up, makes a yarn that is more uniform, and saves time ordinarily consumed in making frequent changes.

Recently two Soutex Machine Co. cards were installed and the ten old cards were reworked and provided with new Scotch feeds and two-cylinder finishers with tape condensers. These cards now deliver on to four roving spools of 24 ends each, 65 in. long, with 13½-in. heads. From the cards the roving spools are carried direct to the mule spinning machines.

Spinning Equipment

In the spinning department fourteen old mules of 399 spindles each have been replaced by eleven Johnson & Bassett, new Giant-package mules of 288 spindles each. The new machines spin approximately the same amount of yarn as the old; but production per spindle is greatly increased, especially on the fine counts ordinarily used in this plant. The increased production per spindle is possible because the Giant-package bobbin contains up to 6½ times as much yarn as the small package, with no decrease in spindle speed, resulting in a saving in doffing time. The greater amount of yarn on the Giant-package bobbin naturally effects a considerable saving in spooling time, less knots, and therefore permits a finer fabric. There is also a saving in floor space and in labor costs. The operators have shared in these savings, as the mill found it possible to increase the hourly rate of pay somewhat better than 10%.

Each mule is individually driven by a ball-bearing type motor, through a multiple Texrope drive to a ball-bearing countershaft, a 3-in. double belt completing the drive to the mule head. Individual drive allows each machine to be shut down when required, without affecting the other machines. A start and stop button is conveniently located within reach of the mule operator at the quadrant stand.

Management Is Open-Minded

"We have no secrets," said Wm. N. Nixon, in discussing with the writer the plans and accomplishments of the company which he serves as plant manager, "and are always glad to tell what we know and glad to learn from the other fellow." This open-minded attitude of the officials of the company and their willingness to embrace new ideas are reflected in the general policy of the organization and in the constant efforts to improve quality and reduce costs through modernization of the plant and equipment.

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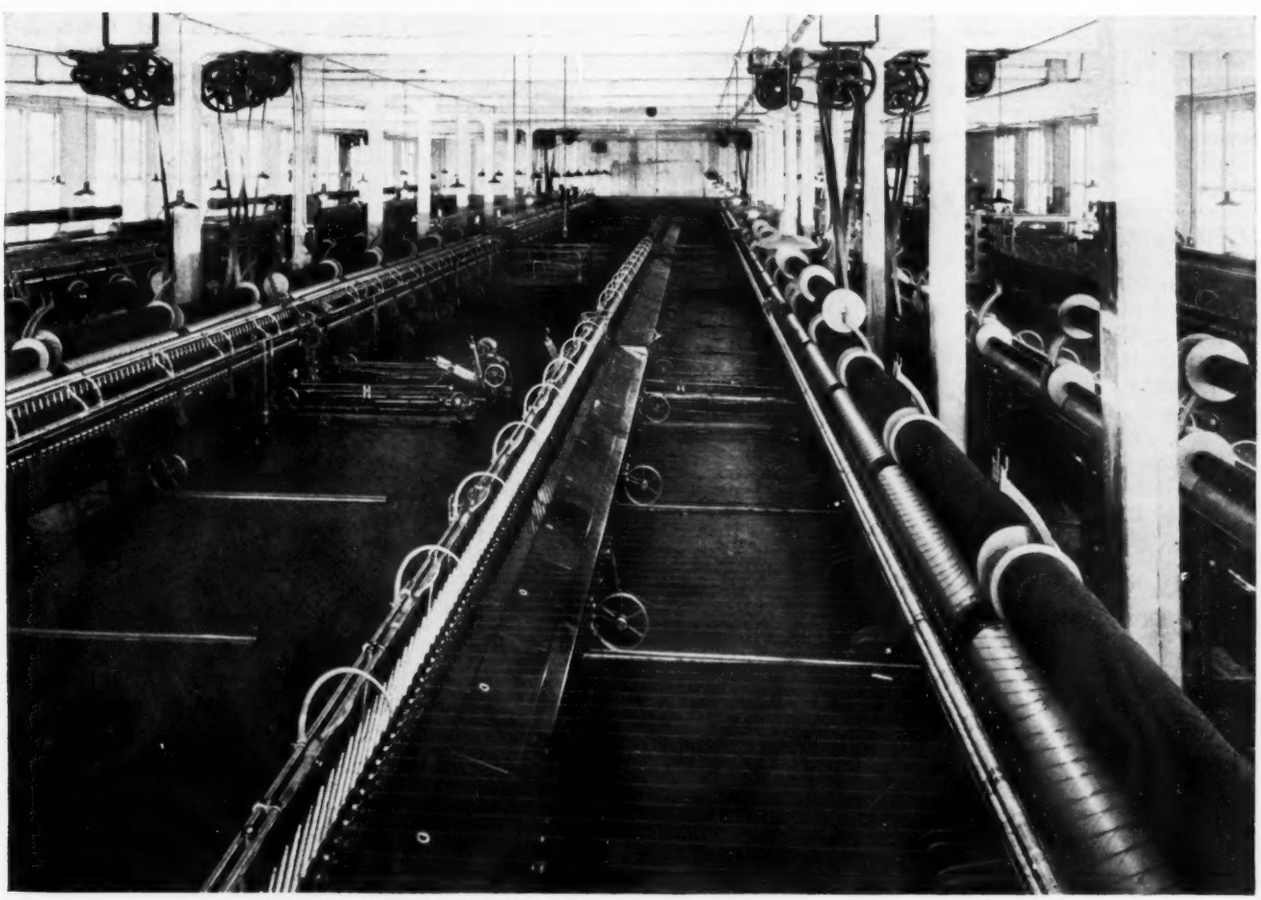


Oiled Silk

Improved product with greater sales appeal obtained by modern methods of processing

By PHILIP LeBRUN

THE "OILED SILK" of today presents a remarkable contrast to the smelly, tacky, yellow-brown, translucent fabric of a few years ago. Improvements in technique have made it possible to produce a flexible, odorless, waterproof fabric—either transparent, translucent, or in any color desired in solid shades or printed patterns. The new "oiled silk" is free from tackiness; it does not stick together upon storing, as the original material was prone to do. This new product, which may be made either from silk or rayon, is finding an ever-expanding field of use in umbrellas, raincoats, shower-curtains, aprons, house dresses, tobacco pouches, and other applications.

Chemicals Employed

Oxidized linseed oil was the basis of all the old formulas and some of the new formulas for producing oiled silk. Linseed oil produces a fairly uniform cloth, which is slightly yellowish at the start and gradually darkens to a golden brown on long storage. When the goods have been dyed previous to oiling, the yellowish tinge is not noticeable until the browner color develops on storing. Cloth impregnated with linseed oil also has a characteristic odor. This is rarely objectionable if the fabric has been treated at the proper temperature. Oil colors are occasionally added to the linseed oil to make an undyed piece of silk more attractive. Chinawood oil is also employed; but its use is limited mainly to Japan.

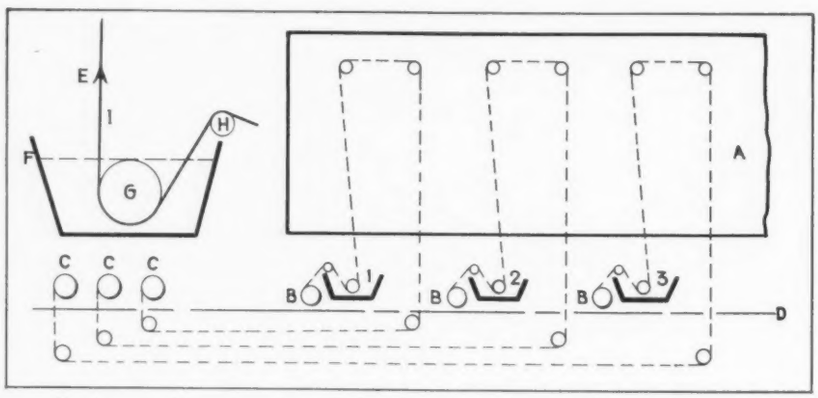
Much of the transparent silk on the market today is produced by the use of special varnishes or lacquers. Vinyl resin lacquers are widely employed, giving an odorless, colorless fabric, which does not become discolored or tacky on storing. Certain other types of synthetic resins can and are being used, at least experimentally. Vinyl resin lacquer is slightly more expensive to use than linseed oil, but it gives a more uniform product and one of greater tensile strength. The lacquer is available in practically all colors; but usually colored oiled silks are obtained by applying colorless lacquers on dyed fabrics, rather than by colored lacquers on white fabrics.

The goods to be treated must be free of all foreign substances, such as sizes, oils, mineral salts (sodium chloride or sodium sulphate in excess), etc. If the cloth is dyed, it is necessary that the dyes used be insoluble in the specific material which is to be used for "oiling" the cloth. Otherwise, a blotchy appearance may result. The dyed or printed cloth is sent to the oiling room on shells. Here the goods are run into troughs filled with lacquer or oxidized oil in a suitable solvent. As the fabric leaves the trough it passes between two smooth blades or scrapers, which scrape off the excess of coating material. The cloth moves very slowly. The average speed varies, but is usually about 30 yd. per hr. Higher speeds will not allow sufficient time for the complete oxidation of the drying oils in one case, or for the complete evaporation of the solvents in the other case.

A drying tower commences about 6 ft. up from the bottom of the trough. It is equipped with water-cooled guide rollers. The temperature in the tower is approximately 200° F. As can be seen from the accompanying sketch, ordinarily the goods get three passes through the oil and the drying tower, after which they are rolled up on special shells. They are now ready for shipment as soon as they have been wrapped. In some instances the desired thickness of the coating is obtained with a smaller number of passes on the machine.

The thickness of the coating is regulated by several factors. First is the viscosity of the impregnating fluid; the more viscuous the sizing material the heavier is the coat. Second is the speed of the unit; the higher the rate of speed (within limits) the less is the flowback and the heavier the coating; depending on speed to regulate the thickness of the coating will have a tendency to create uneven cloth; it is preferable to depend on more or less concentrated or viscous solutions. Third is the temperature in the tower; the higher the temperature the less is the flowback and therefore the heavier is the coating; while some manufacturers use a temperature of 225° F. for drying of the solvents and completing the oxidation (in the case of the drying oils), 250 to 260° F. is the average. The lower temperature means a saving in heat, but in the case of linseed oil impregnation will usually result in a more tacky and less transparent fabric than a similar cloth dried at 250° F. In some of the better-equipped plants solvent recovery systems have been installed.

Many oiled silks intended for decorative use are printed after oiling. In almost all cases of this kind the fabric is lacquer printed. Most designs consist of a white pigment in a clear lacquer printed on a transparent silk make of goods previously dyed to some bright shade.



Equipment for processing oiled silks: A—drying tower; B—cloth as received; C—oiled silk; 1-2-3-troughs which may be run as single units or in series; D—false floor; E—scrapers which remove excess fluid; F—liquid level; G—immersion roll; H—guide roll; I—treated cloth

Plains Vie With Fancies

Paris openings feature plain twills and wide variety of fancies

By BETTY HIRSCHBERG
Paris correspondent, TEXTILE WORLD

"OUR DESIGNERS are constantly searching for original or unusual fancies, and then it is that a simple little twill—one of the oldest fabric constructions—gets the tremendous success among current summer fabrics . . ." With these words, the publicity manager of Chatillon Mouly Roussel's shows a brilliant, soft silk, plain and dotted, charming in its simplicity and freshness. Similar statements might be made throughout the Parisian market. The recently opened summer collections tend toward plain materials, simple and classic designs, flat surfaces. Stripes, dots, checks are the principal motifs, and the fancy note is by no means neglected.

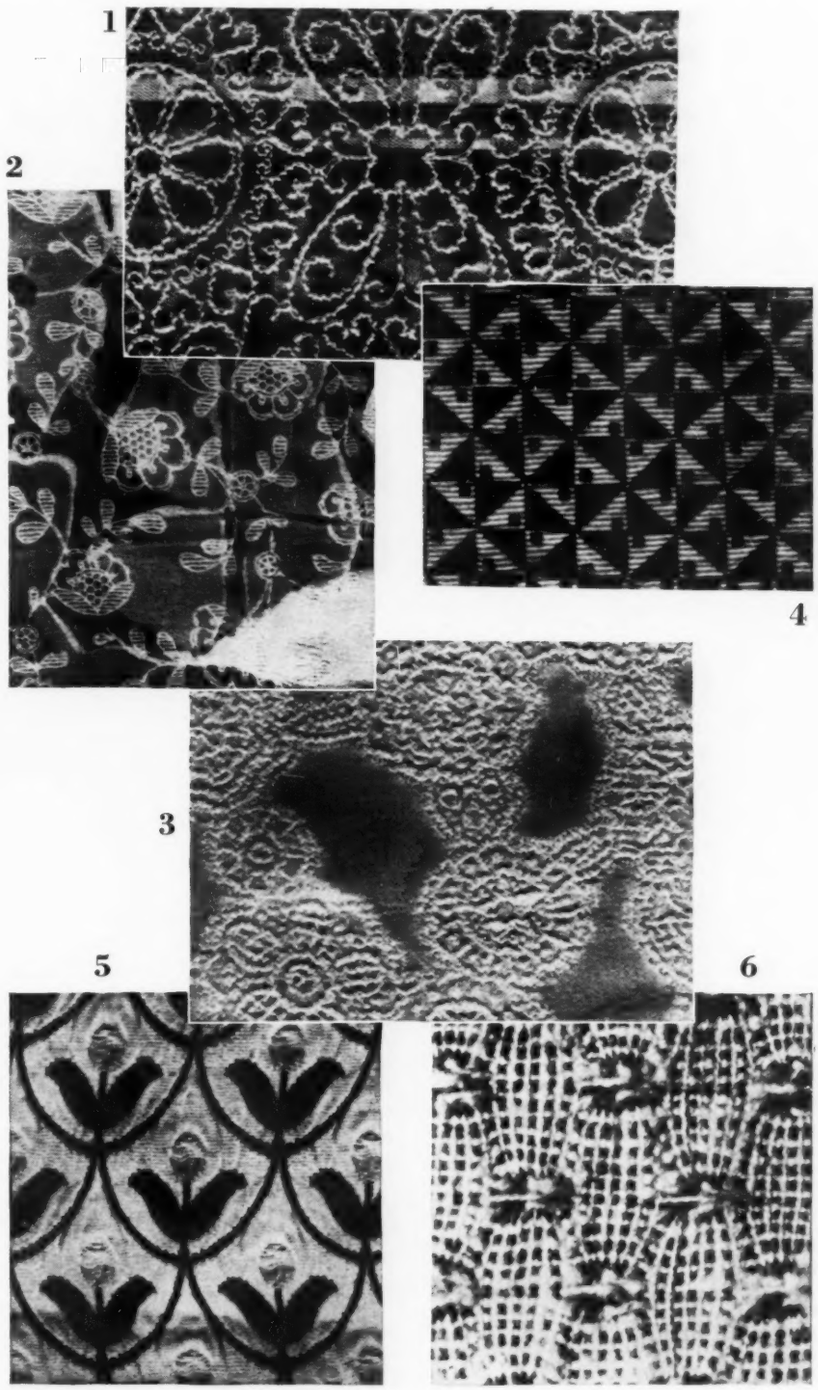
In printed silks, there are all kinds of geometrical designs, many black-white and blue-white, little flowers totally covering the background, very large flowers arranged in stripes; Castelain replaces flower-stripes by flower-checks. Printed fabrics for the sea-shore show subtropical designs and colors.

A new and graceful novelty is the use of lace-like designs over printed silks. Castelain covers a flower-design with fine lace-motifs both printed and embroidered; he also offers on a voile ground a woven lace-motif. Open-work effects (Ajour) are another great novelty. Ottomans and reps play an important role.

For sports and streetwear flannels, shetlands, tweeds, buré are prevailing, and often in unusual pastel colors. Patou and Rochas are using men's wear designs for dresses, to go with jackets of plain materials, or combined in the same dress.

To facilitate combinations in this manner, E. Meyer, the wool specialist, has created two groups of fabrics of two different constructions but each treated in both plain and fancy. One group is flannel-like, whatever the design or color; the other a crepe.

Patou has chosen as summer colors "Ultra-Blue", "Yellow-Aurora" and "Alabaster-White," used especially for evening wear. Black and navy are prevailing, apart from fancy designs. Dotted twill is used by Rochas for shorts and seaside knickerbockers. Piquet shows evening jackets of dotted silk foulard like blouses of jockeys.



1. Embroidery on yarn-dyed plaid. 2. Embroidered effect gained by surprinting. 3. Lace effect in etched fabric on voile ground. 4. Printed ottoman. 5. Double fabric. 6. Moucharaby.

1-4, Castelain 5-6, Chatillon Mouly Roussel

Cotton Yarn Rules

Of 1937 sent to spinners—Represent a vital step forward

THE Cotton Yarn Rules of 1937 have been sent to spinners for consideration and adoption, if approved. This set of rules for buying and selling cotton yarn has been developed by joint study between the Carded Yarn Group and the Southern Combed Yarn Spinners Association. Submission to manufacturers is in accordance with the resolution adopted at a joint meeting of spinners from those two groups held in Charlotte, N. C., Dec. 17, 1937.

A foreword to the rules states:

"It is believed that the most effective manner in which the industry can properly and adequately deal with its trade problems is to adopt a set of fair and equitable rules, providing for definite contracts and embodying the established and recognized customs now observed by persons, firms, and corporations, buyers and sellers alike, who live up to the letter and spirit of their contracts."

The complete rules follow:

Contracts

1. These rules shall be known and referred to as "Cotton Yarn Rules of 1937."

2. The provisions of the Cotton Yarn Rules of 1937 may be incorporated in any yarn contract by inserting, in the memorandum of sale, the following clause: "This sales note is subject to the provisions of the Cotton Yarn Rules of 1937."

3. By this reference the Cotton Yarn Rules of 1937 are incorporated as a part of an agreement and together therewith constitutes the entire contract between buyer and seller. No variation therefrom shall be valid unless accepted in writing.

4. Any controversy arising under, or in relation to, the contract shall be settled by arbitration as provided for within these rules.

5. Each sales note shall indicate on the face thereof the name of the person, firm or corporation responsible for carrying out all terms and conditions of the contract, and such person, firm or corporation having once been designated as the buyer shall sign the confirmation of the order and be held responsible by seller throughout the full term of contract.

6. A contract is deemed to be made and performed in the County and State of the seller; and subject yarns are considered sold f.o.b. seller's mill with freight prepaid by cheapest route to agreed destination, unless other routing is specified in writing on the face of original contract.

7. The term "sales note" means agreement or contract.

Specifications and Deliveries

8. Quantity, count and description of yarn shall be shown on the face of each sales note, setting forth the total number of pounds involved in each contract, the number of pounds required in each count with specifications agreed upon with reference to delivery, put-up, twist, etc. Where buyer desires to change such description, the seller is not required to deliver any other kind of yarn or different put-up, unless adjustment is made in original contract by means of a supplementary written agreement.

9. Details as to delivery under a contract shall in all cases include and establish a definite terminal date by which time all shipments against contract shall have been made. Delivery hereunder shall mean the shipment of yarns by delivery to a common carrier and the receipt of a bill of lading therefor.

10. Any specifications of assortment or delivery not given with the order are subject to earliest delivery dates open when received by seller. Buyer agrees that any balance of a contract unspecified within the required time may, at seller's option, be delivered in seller's selection, within the range allowed in the contract or like those already specified under it, as though so specified by buyer.

11. Where equal monthly deliveries are required or where contract specifies delivery over several consecutive months (in which latter case equal monthly deliveries shall be understood) spinning instructions must be furnished by buyer not later than the first of the month involved.

12. In any instance where a seller shall agree to allow buyer any extension of the delivery date or dates originally provided for in a contract, such agreement shall be executed in the form of a supplementary written contract that shall fix and establish other definite date or dates of delivery.

13. Where delivery specifications are deferred, interest at the rate of 6 per cent per annum shall be added to the purchase price of the goods so deferred. This interest charge shall be figured from the end of the applicable terminal delivery date on the original contract to the date delivery is consummated under the supplementary agreement.

14. Either buyer or seller may, in the event of default, liquidate his damage by charging the party in default with the difference between the contract price and the market price, provided three days' notice is given of the intention to liquidate the loss. Such action shall not affect the validity of the contract.

15. If sold as "spots" for "spot delivery," it is understood that subject goods are on hand and shipment must be made not later than the first business day following that on which the order is received by the mill.

16. If sold for "prompt delivery," shipment must be made not later than eight days after contract date.

17. The word "about" when used with respect to a calendar day means "within five days before or after such a date."

18. A delivery specified during a calendar week, a calendar month, or during any other stated period, may be delivered, at seller's option, at any time during such week, month or period. For instance, a contract calling for "July delivery" may be delivered on July 1, July 31, or an any day during July; furthermore, unless specified for delivery in one lot or in agreed minimum installments, it may be delivered in two or more installments of reasonable size, at any time during July.

19. A delivery specified as "equal weekly during a calendar month" shall be delivered in four installments of approximately equal quantity; the month shall be deemed to consist of four periods of approximately equal length, and one delivery must be made during each such period.

Passing of Title

20. The title to goods sold hereunder shall pass to the buyer and thereafter goods shall be at buyer's risk:

(a) In the instance of goods sold f.o.b. mill, upon delivery to carrier, free on board, consigned to buyer or his designee, provided, however, that, for proper cause, seller shall have the right of stoppage *in transitu*.

(b) In the instance of goods to be delivered f.o.b. elsewhere than to carrier, upon arrival of goods at destination and delivery to buyer of bill of lading.

(c) In the instance of goods consigned to seller's order, upon delivery of indorsed bill of lading.

(d) In the instance of goods ordered held or for which buyer has failed to supply shipping instructions, upon the assembling of the goods and the holding thereof subject to buyer's order, and after due mailing of covering invoice.

(e) In the instance of goods, subject to terms C.B.D. which have been invoiced prior to payment, the preceding sections a, b, c, and d of this paragraph shall not apply and title shall pass only upon receipt of satisfactory settlement.

Terms of Collection and Credit

21. Price and terms of payment shall be clearly stated on each sales-note but shall be subject to special provisions of section (a) hereunder:

(a) It is mutually understood that the price on any undelivered portion of contracts is subject to increase or decrease due to any governmental action or further legislation and/or governmentally accepted codes, affecting seller's cost, and shipments may be modified to the extent necessitated by any such action, legislation and/or codes.

22. Bills shall be payable on the due date under discount of 2 per cent at the place of collection designated by seller in funds bankable at par, and, if payment is not received within five days after discount maturity, no discount shall be allowed and interest at 6 per cent per annum will be charged after the expiration of 30 days from discount maturity. In the case of sales made on the basis of tenth proximo terms, shipments made on or after the 25th of the month may be dated as of the first of the following month. Anticipation may be allowed on prepayment prior to discount date at 6 per cent per annum.

23. Seller or seller's agent shall have the right, from time to time, on any unfilled portion of a contract, to limit

R. D. Hall, president of Southern Combed Yarn Spinners Association, one of the two organizations which cooperated in the development of the "Cotton Yarn Rules of 1937."

E. O. Fitzsimons, secretary of the Carded Yarn Group, the other participating organization.

any credit to be extended thereunder or to require payment before delivery, provided, always, that proper adjustment of discount or allowance of anticipation for such prepayment be made. Such suspension of shipments shall in no wise release any obligation of the purchaser.

Cancellations, Rejections and Claims (also see Casualty)

24. The replacement or adjustment of a delivery, either made or agreed upon, shall cure any defect or default with respect to that delivery and in the determination of any substantial breach, a defect or default so cured shall be deemed not to have occurred. The seller has the privilege of replacing the delivery in question within thirty days.

25. Buyer's rights to reject or cancel, because of default in delivery shall expire:

(a) When the goods have been shipped.

(b) In the instance of goods which have been billed and held for shipping directions, if buyer fails to exercise such rights promptly upon receipt of invoice and not later than eight days after the mailing date of invoice, provided it has been properly addressed.

26. Goods shall be deemed to have been accepted and buyer's rights to reject, cancel or replace because of defect, shall expire:

(a) When ten days have elapsed after buyer knows of such defect.

(b) When yarns have entered any converting process.

(c) In any event, when three months have elapsed after passing of title.

27. Seller's representative, upon request, must be given reasonable opportunity to examine and test any goods shipped under a given contract and rejected by buyer for any reason.

28. Seller shall be allowed to reweigh yarn in original package or packages before allowing loss in weight claims—weight claims to be reported within 10 days from arrival of yarn, and such claims will be recognized by seller only when made within this time limit.

29. Claims on tare will be recognized only when reported within 30 days after receipt of yarn by buyer.

30. Seller shall have either the right to cancel without damages and return to stock or to discontinue manufacturing, or the right to cancel and sell for buyer's account at public auction or private sale, when eight days have elapsed from the mailing date of registered notice to such effect, or as soon thereafter as practicable:

(a) Any unshipped goods covered by an invoice issued hereunder, if payment therefor has been in default over 10 days.

(b) Any unfilled portion thereof if, at the time of such cancellation, payment for 20 per cent or more of the whole contract is in default over 10 days.

Storage and Insurance

31. Goods invoiced and held by mill for whatever reason shall be at buyer's risk. Whether located in mill's warehouse or elsewhere, they shall be included under the general fire insurance policies of the mill; and in case of loss, adjustment shall be made out of the insurance received, pro rata with all goods damaged. Goods held for more than one year shall be stored and insured at buyer's expense.

Casualty

32. If during this contract the production of the subject mill or that of any prior processor whose product is specified hereunder should be curtailed by strike, lockout, or in addition to those causes specified, by unavoidable casualty or any cause beyond seller's control, actual output of the goods designated in the contract, together with such goods on hand shall be prorated among all contracts in force at the time such contingency becomes fact and as respective delivery dates occur during the lives of such contracts; or if the buyer by reason of strike, lockout, or in addition to the causes specified, by unavoidable casualty or any cause beyond buyer's control, be unable to furnish specifications and accept deliveries as specified in the contract, then in such event, the rights of the buyer and seller shall be limited to those provided within these rules.

33. Subject to a sixty-day tolerance, with respect to time of delivery, buyer or seller shall have the right to cancel any part of the contract past due and undelivered by reason of any cause cited above; provided notice of such curtailment is mailed to buyer or seller not later than five days after any delivery, hereunder, is interrupted thereby.

34. If so cancelled, reasonable replacement cost as of cancellation date shall be determined by agreement, and ten days thereafter, the difference between cost and contract price, if appreciation, shall be paid by seller to buyer or if depreciation, by buyer to seller. However, if the strike or lockout which interrupts delivery is general in character, either with respect to the industry as a whole or to the group of mills currently equipped to produce or convert the subject yarn, then either party may postpone the date as of which replacement cost is determined to the last business day of the month in which total monthly figures indicate that normal operations have been resumed. This right to postpone shall not impair any right to cancel.

35. Upon the resumption of normal operations, the seller or buyer, whichever may have been affected by the strikes, etc., shall declare new delivery dates for any yarn then past due; five days after receipt of such declaration, the rights to cancel provided above shall expire and the delivery schedules, thus amended, shall become valid under the contract.

Other Contingencies

36. If the sales note, of which these rules have become a part, provides any conditions or procedure inconsistent with these rules, then that sales note shall govern.

37. Contingencies, not covered in either sales note or in any appended specification, shall be interpreted in accordance with the established rules and customs of the trade, particularly with those rules and customs which have been formally approved by authorized bodies, representing both buyer and seller.

Quotations

38. All quotations are understood to be good for the current day only, unless otherwise specified, and the day is understood to end at 6 P.M., Eastern Standard Time.

Arbitration

39. In any instance where claim has been made by the buyer that goods shipped under a contract are not up to contract specifications, and buyer and seller have failed to agree on a fair basis of settlement, such controversy shall be settled in the following manner:

(a) The buyer and the seller shall each choose a disinterested representative who shall be qualified through knowledge and experience to judge the case in question. These two parties shall then choose another person agreeable to both of them, and the three representatives so chosen shall constitute a board of arbitration. It is mutually understood and agreed between buyer and seller that the majority ruling of the board of arbitration so established shall be final and binding upon both of them in the settlement of their differences—provided, however, that the yarn in question shall be available for examination and testing by all parties concerned.

(b) In the adjustment of claims arising from defects which can be checked mechanically, the standard specifications for tolerance and test methods for yarns, single and ply, as defined by the American Society for Testing Materials, designation No. D 180-37, are to be used in connection with yarn shipped under this contract. All other specifications as to quality, quantity, measurement, count and weight are approximate and in accordance with the custom of the trade.

(c) Warps and beams covered by this contract will be invoiced at theoretical weights but seller guarantees actual weight will be within 2 per cent of theoretical weight.

Heat-Resisting Cord

With low stretch and high tensile strength for use in tires and mechanical goods

INTRODUCTION a year ago of a special type of rayon suitable for use in the manufacture of heavy-duty tires for trucks and buses was a direct challenge to the supremacy of cotton in the mechanical-goods field. Twisted into cords, this rayon produced a tire superior to the best that had been made from cotton. Manufacturers of cotton tire cords were faced with the possible loss of the market for the 80,000,000 lb. of cord used annually in this country in truck and bus tires. The answer to this threat was the development of heat-resisting cotton cord, of which several types now are available.

These heat-resistant cotton cords are expected to find application in the manufacture of tires for trucks, buses, and passenger cars; flat and V-belts; steam, fire, and air-brake hose; and other mechanical goods which may be subjected to great stresses and high temperatures. Both the rayon cords and the various heat-resistant cotton cords are too new to permit an unbiased and authoritative comparison based on performance records. It is possible, however, to indicate the ways in which manufacturers of cotton cord are improving their product in answer to rayon's challenge for dominance in the mechanical-goods field.

Why Cords Fail

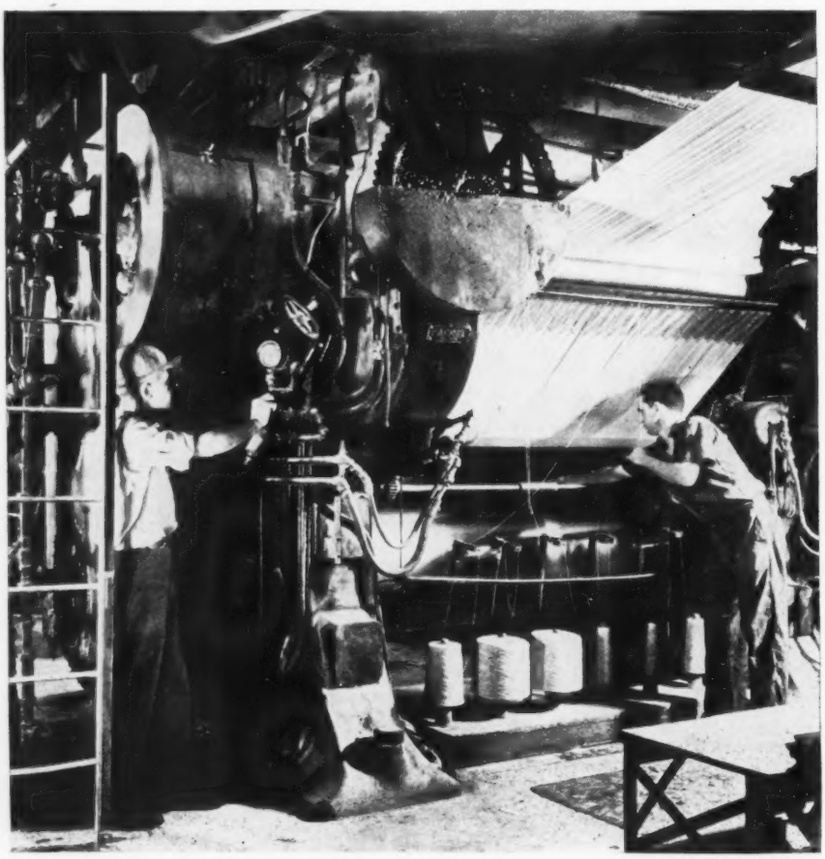
Cord as used in industry, is subjected to flexing at high speeds; and this flexing creates a frictional heat, which, in some instances, rises to a temperature of 250° F. This excessive heat tends not only to dry out the normal moisture content of the cord, but also to destroy the natural oil and wax inherent in the fibers, thus causing them to become harsh and brittle. The loss of the natural moisture causes a distinct loss in tensile strength of the cord; and the further loss of natural oil and wax of the fibers weakens the fibers to such a point that complete failure of the cord is brought about. In addition to the flexing between the fibers, within the cord, there is a flexing between the cords, where one cord is placed adjacent to another, or one layer of cords is adjacent to another layer.

The objective of the manufacturers is to construct the cord so that it will generate a minimum of heat, and to treat it in such a way that it will withstand the heat that is generated. Various manufacturers use different methods of processing cord to obtain a heat-resistant effect. Some use a chemical treating process, some a compressing process, and others a stretching process, while still others use some combination of these.

Chemical solutions may be applied in connection with either spinning, twisting, or a further process. The solution used should be of such penetrating nature that it will impregnate the fibers thoroughly, and of such heat-resisting quality that it will be unaffected by the high temperatures encountered in industrial uses. These properties will enable it to stay in the fibers and act as a lubricant for them, even though the fibers may lose their normal moisture content. It is stated that cord has tested 10.4 lb. at 250° F. and 17.1 lb. at 75° F. before being treated and 13.3 lb. at 250° F. and 21.0 lb. at 75° F. after being treated. According to U. S. Patent Nos. 2,050,196 and 2,050,197, some of the chemicals which may be used advantageously are dibutyl amine, cyclohexyl amine, and gallic acid. Treatment with cuprammonium solution has also been suggested.

Internal friction within the cord may be reduced by compressing the cord in connection with the twisting process. Under normal conditions, the fibers have a tendency to be segregated from one another, due to minute air-spaces between them, and to corrugation of the fibers. This segregation results in a certain looseness of structure of the cord, thus allowing excess flexure between the fibers. In compressing the cord, the air-spaces are forced out, and the fibers are laid in closer proximity to one another, thus resulting in a more compact cord having a smaller gage.

Reduction in gage allows the processor to apply more rubber to act as a cushion between the cords, without



B. F. Goodrich Co.

Covering tire cord with rubber

Effect of chemical and mechanical treatments on cotton cord

	Chemically treated	*Chemically treated and stretched*	*Chemically treated, stretched and compressed*
Size	1.026	1.074	1.090
Gage	33.25	32.25	32.00
Break, normal moisture	20.70	21.65	22.10
Stretch at 10 lb.	5.83	3.85	3.72
Stretch at break	11.96	9.60	9.05
Bone-dry break	20.08	21.43	22.85
Stretch at 10 lb.	6.05	5.25	5.08
Stretch at break	10.10	8.50	8.50

altering the thickness of the tire or belt. Again, for some purposes it may be more desirable to apply the same quantity of rubber and build a thinner tire carcass or belt. This is due to the fact that the flexing of any member sets up internal stresses which increase rapidly as thickness is increased, particularly when the member is heavily loaded. Heat is generated, in proportion to the magnitude of the internal stresses.

Lowering of the elongation is effected by stretching the cord nearly to the breaking point, in connection with twisting or a further process. Ordinarily, cords used in tires or belts are subjected to great stretching forces throughout, except at the point of flexure. At this point, the cords at the outer surface of the body are subjected to additional stretching force, while the cords at the inner surface are subjected to a compressing force, concentric with the axis of the cord. This compressing force causes the cords to buckle, and the inner wall to break down; eventually complete failure of the body is the result. By lowering elongation to a minimum, the buckling effect is reduced in proportion, hence greatly enhancing the life of the tire or belt.

Additional advantages due to lowering of the elongation are a decrease in gage of the cord, and an increase in the length per unit weight; however, these are only incidental in comparison with the actual decrease in the elongation itself. Further details on cords of reduced gage and low elongation appear in U. S. Patents Nos. 2,028,003 and 2,103,218. The accompanying table from the latter patent indicates the tensile strength, stretch, and elongation of cotton cord which has been subjected to chemical and mechanical treatment.

Quite aside from the heat-resistant cord made of pure cotton, is a heat-resistant cord made of a mixture of 30 to 50% asbestos and the remainder cotton. The mixing may be done by hand, on the opener-room floor, and the stock run through the picker in the same manner as pure cotton stock. Inasmuch as the characteristics of this type of yarn are not known, the possibilities can not be stated here.

Interesting Color Effects

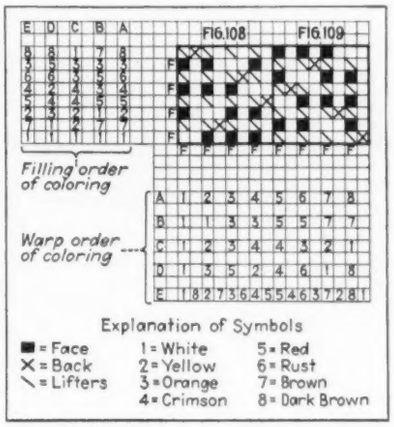
Can be obtained by use of double-twill and sateen-stripe designs

By R. A. C. SCOTT

DOUBLE-TWILL and sateen-stripe designs offer many possibilities for producing very similar and equally as good results as can be obtained with double-plain weaves. Although it is generally accepted that the double-plain weave is firmer, neater, and more serviceable from the wearer's point of view, double twills and sateen stripes have an advantage in that they permit introduction of a larger number of color schemes and arrangements. Thus, the double three-end twill allows the use of six colors, the double four-end twill or sateen of eight colors, the double five-end sateen of ten colors, and so on. Moreover, should larger colored pattern effects than are allowed without stitching be desired, firmness of structure can be maintained by resorting to the ordinary principle of tying the face weave to the back or *vice versa*.

Since the principles involved are on the same basis as explained previously for double-plain effects, the present article will confine itself to the study of the four-end warp sateen double weave. The plans given in Figs. 108 and 109 are for four-end warp sateen back and face with ends arranged one face, one back, throughout.

It will be noticed that, by employing this special arrangement, the back and face interchange every eight ends. In this way the back and face are interwoven without the necessity of extra stitching ends. Four distinct color schemes are illustrated.



Figs. 108 and 109—Double-twill and sateen-stripe designs offer interesting color-pattern possibilities

Thus, *A* will give eight different colored stripes, *B* will give four double colored stripes, *C* will give a four-colored ombre stripe effect, and *D* will give a four-colored broken order of stripe. The marks in Figs. 108 and 109 represent warp, and the cloth is warp surface on both sides. The various symbols used, and their explanation, given below the plans, clearly indicate the procedure adopted in obtaining these color effects. The warp colorings as given at *A*, *B*, *C*, and *D* are for the face only, but similar stripe effects can be obtained on the back also, by arranging the back colored ends the same as the pick or picks over which each is raised. For example, by dressing *A* as shown at *E* and employing the picking arrangement indicated at *A*, the face of the resulting cloth will show colored hair-line stripes in the following order: white, yellow, orange, crimson, red, rust, brown, and dark brown. At the same time, the back order of striping will be the reverse of that of the face; i.e., dark brown, brown, rust, etc. In similar manner *B*, *C*, and *D* can be arranged to give reversible effects.

Antidote for Higher Costs

Increased output per machine and per operative an offset to possible wage and hour restrictions

By ALBERT PALMER
Crompton & Knowles Loom Works, Worcester, Mass.

IN A HIGHLY competitive market, the mill man is faced with the necessity for reducing his prices under conditions where many of the old opportunities for cost reduction have been removed. Possible restrictions with respect to minimum wages and maximum working hours will preclude savings through the adjustment of those items. Buying advantages in the form of price differentials on raw material have been minimized. Scientific studies of processing have become of such general use that the margin of efficiency between a progressive mill and its less ambitious colleagues has been narrowed. Efforts to cut indirect labor costs and items of overhead expense help, but they are relatively ineffective. The real answer to lower costs lies in increasing the output of the producing units of the mill; namely, the machines and the men.

Labor and Overhead

These statements can be checked approximately by taking the case of a 1,000-loom terry weave room. Here the total operating cost per loom per week can be divided as follows: total direct labor cost (weavers and loom-fixers), 45%; total indirect labor cost (all other weave room employees), 20%; total overhead expense, 35%.

Of the items of overhead which are subject to some reduction, the most important constitute only a small fraction of the total operating cost for the weave room. For instance, property taxes on the buildings and machinery represent less than 1% of the total; power, about 4¾%; and supplies about 4½%. If the mill decides to write off idle buildings and equipment, the charge for depreciation might be reduced; however, the effect would be relatively small, inasmuch as the charge for depreciation is only about 6½% of the total weave room operating cost.

On the other hand, with all the items of the cost per loom per week remaining substantially the same, greater output per loom per week results not only in a lower labor cost per yard, but also in a lower overhead cost per yard. A 25% increase in production has the same effect as a 20% cut in both wages and overhead expense with no change in the number of hours of machine operation.

Suppose that some day mills that now are working on a 40-hr. week should be forced to go on a 30-hr. week with no change in the weekly pay of the employees. In the case of the terry mill which already has been used as an example, the weaving cost per yard, including all labor and overhead items, would be increased 30%, assuming that the mill is operating on a two-shift basis.

Another possibility is that wages might be increased with no increase in the number of working hours. For instance, if the wage rate per week is increased 33⅓%, the total weaving cost including all labor and overhead items, is 22% greater than the original cost.

To keep selling prices the same, the mill obviously must try to reduce its costs. This can be accomplished by increasing the output per machine and per operative. For instance, experience to date with the most modern terry towel looms indicates that in the first example the weaving cost would be 91% of the original cost per yard with the old loom. In the second case, it would be 84% of the weaving cost per yard of the original situation. Thus, the increased output per week which is made possible by the new machinery not only offsets the increased cost resulting from these rather extreme examples, but produces a cost under these new conditions which is below the cost of the original situation.

Effect of Improved Machinery

In the August, 1937, issue of the *Monthly Labor Review*, published by the U. S. Department of Labor, there is a study by Boris Stern, of the Bureau of Labor Statistics, of the effect of improved machinery and equipment on labor productivity in the cotton textile industry. Without going into the details of this report, a few general conclusions which relate to the present discussion can be drawn. If, for instance, the man-hour output of finished product from the best mill that could be built in 1936 is compared with the man-hour output of the best mill that could have been built in 1910, it will be found to range from approximately 47% to 152% more. The average increased man-hour output of finished products from the 1936 mill as compared with the 1910 mill is 70%.

A similar comparison of man-hour output in each of the major departments yields some interesting information. Taking the average of Mr. Stern's figures for eight different fabrics, the increase in man-hour output for the 1936 mill as compared with the 1910 mill is as follows:

Carding, 98%; spinning, 37%; spooling and warping, 151%; slashing and drawing, 50%; weaving, 95%; and cloth room, 15%.

While these figures indicate the difference between the most modern mill that could be built today and one that was built 25 years ago, they apply, in some degree, to practically every mill that exists. There has been a large amount of modernization in the last few years. However, there still remains a tremendous amount of old equipment in place in the industry.

Modern Looms

Improvements that now are available in textile machinery are of comparatively recent origin. About ten years ago the machinery manufacturers were faced with the necessity for improving their products, inasmuch as the market for them became primarily a matter of replacement. Modern looms afford good examples of what has been done to provide higher speeds, more continuous operation, and less work for the operative in the new machinery.

The Type S-3 silk and rayon loom, in the 2 x 1 model, is operating at a speed of 142 picks per min., 90% efficiency and from 12 to 24 looms per weaver, from 18 to 36 looms per battery hand, and from 44 to 60 looms per fixer, depending on the particular model and the type of work.

Indicative of results that are being

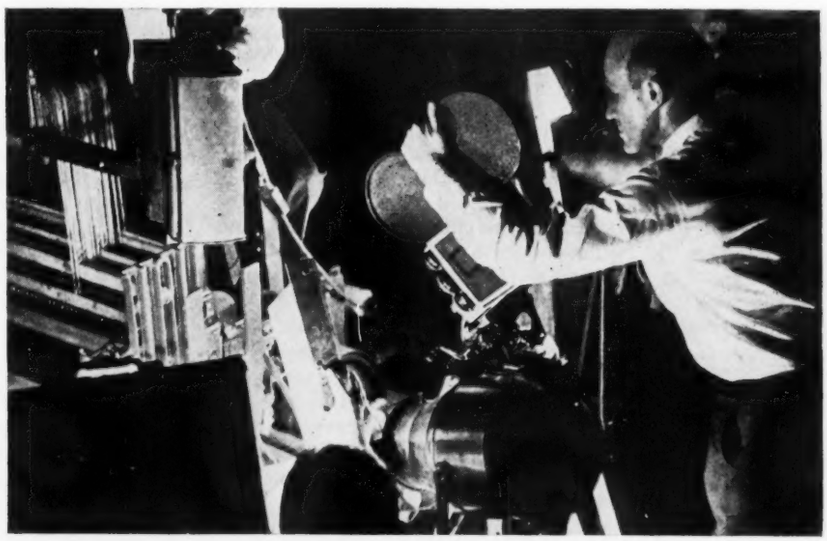
Abstract of a paper presented before the Eastern Division, Textile Society of Canada, Jan. 29, in Montreal.

obtained with the different models of the Type C cotton looms are the following: on narrow cam terry looms several large installations are being operated at 182 picks per pin., 85% efficiency, 12 to 14 looms per weaver, 48 to a loomfixer, with no battery hand. Wide dobby upholstery looms are being operated at 142 picks per min., 85% efficiency, 6 to 8 looms per weaver, 30 looms to the fixer, with no battery hand.

In the duck field two new automatic shuttle-changing looms have been built. Indications are to date that a 76-in. D-2 loom can be run at a speed of 125 picks per min., 85% efficiency, 14 looms per weaver, 14 looms per fixer, and 7 looms to the battery hand. As yet experience with the D-1 loom is somewhat limited, but indications are that the speed will be in the neighborhood of 147 picks per min.

In the woolen and worsted industry the new W-2 and W-3 looms run at an average speed of 128 picks per min. and an efficiency of 80% to 85%. Four to six looms per weaver and 20 to 24 to a fixer are assigned. Generally, no battery hand is used and the loomfixer puts in his own warps.

In years past rules of thumb resulting from experience were used to determine the relative proportions of loom mechanisms. Many attempts were made to check these rules by various mechanical and electrical devices. None of the methods tried, however, were very satisfactory. For these reasons, the decision was reached to take slow motion pictures of a loom in operation.



Taking movies of C&K bobbin-changing loom; camera is fitted with a slow motion attachment capable of taking approximately 200 frames per second against a normal operation in projection of 16 frames a second; result is that a loom which is photographed at a speed of 140 picks per min. shows up on the screen as operating at 12 picks per min.

Slow Motion Pictures

Numerous interesting facts were obtained from these motion picture studies. For instance, in the average loom the shuttle loses ⅓ of its velocity in traveling from one selvage to the other. At the time the nose of the shuttle is entering the selvage on the drop box side of the loom the shuttle speed is 38.7 ft. per sec. Halfway across the loom it is 32.3 ft. per sec. Leaving the opposite selvage, it is 25.6 ft. per sec. Such information as this made possible the design of picking shoes which now are used on all the new looms.

The studies on warp tension as yet are not complete, but findings to date show that the warp tension, when the harnesses are wide open, is almost as great as the tension at the time of beat-up in most looms.

In the last two or three years the technique for designing harness cams has been improved greatly. Also, much information has been compiled concerning the different harness motions from the standpoint of the rapidity with which they move the harnesses and the length of time during which they hold the harnesses open for the free passage of the shuttle. In this connection, a considerable amount of work has been carried on with reference to the crankshaft throw for harness mechanisms on various types of looms.

Other mechanisms also have been investigated. One example is the center-filling stop motion. The velocity of the feeler wires has been studied in connection with the pressure of the wires upon the filling to minimize the kinking effect on the filling.

The First Question

With an understanding of the progress that has been made by the machinery industry and of the results that can be obtained, the problem of the mill manager is to apply the information to his own mill. The first question which he must answer is: "Which of my machines should be replaced?"

The reply to this query is one that cannot be made without some thought. There is a definite need for establishing cost and time-study methods that will enable the mill manager to group machinery so that he can pick out the least efficient equipment and replace it with new equipment.

Elements of Cost

The elements of cost for each fabric are known for the equipment as a whole in every department of the mill. However, few mills know the cost of making the fabric on the least efficient machinery, and on the most efficient machinery, and on that which may be intermediately situated between these two extremes.

In the process of replacing old mill equipment, the machinery manufacturer can be helpful to a mill. He usually is ready to cooperate with engineering service and to a certain extent with the financing of new equipment purchased.

One final observation is to emphasize the need for measurement of work assignment in terms other than the number of machines to be tended.

Manifestly, one of the advantages of a modern machine is that it requires less work on the part of the operative.

For this reason, management and labor will have to use a system of work assignment in which the units of work required of the operative by the machine will be balanced against the units of work that the individual operative is capable of rendering without being overburdened. Scientific standards of comparison will be beneficial to all concerned. Mutual understanding and agreement upon the principle of using increased output per machine and per operative as a means for combatting high costs will go a long way toward maintaining for the textile industry, the normal sales volume which inevitably will be lost if higher selling prices for textile products are allowed to hamper the buying capacity of the consumer.

Tuck-Stitch Knitting

Careful supervision of constructions, settings, and plant assures efficient production

By FREDERICK J. QUILITZSCH

SPECIAL CARE should be exercised in selecting yarns to be used in knitting tuck-stitch underwear. When you secure a yarn that suits you in softness, color, evenness, twist, etc., keep running that yarn, for any change may lead to trouble with lengths, colors, fabric appearance, and feel. Yarn is the most important material used in knitting mills, because the yarn represents about 50 to 80% of the total cost of producing knitted garments. Great care should be taken in placing contracts for yarn, since one of the greatest opportunities for making a profit in the underwear industry is in the purchasing of yarn. A purchasing agent who understands the market is a decided asset.

When yarns of different colors are to be knitted together, as in the example illustrated in Fig. 1, care should be taken to see that the twist of the natural and the colored yarn is the same. If one yarn is more loosely twisted than the other, it will look heavier and stand out more, giving the fabric an uneven appearance.

Some styles must be run with tensions, and it is better to have tensions on the machines at all times, if possible; fabrics produced will have a more even appearance if they are used. Care should be taken to make certain the tension is the same at all feeds. It may be found that some machines and styles run better without tensions; if such is the case, make sure all of the machines on such styles are run without them. This will help to assure uniformity of the fabrics. Also, all machines should be threaded alike, as this has a great deal to do with the yarn tension.

Machine Speeds

Likewise, the speed of the machine has a bearing on tension. On revolving-head machines, the faster the machine runs the more friction is caused by the air as the yarn comes off the cone. This causes increased tension. All tuck-stitch machines should be run at the same diametral revolutions per minute so that the amount of yarn drawn from the cone during any given period will remain constant regardless of the diameter of the machine in question. Thus, the tension on the yarn caused by machine speed will be as nearly uniform as is practically possible. A good average speed for tuck-stitch machines is 620 diametral r.p.m. To determine actual revolutions per minute at which any machine should be run, divide 620 by the diameter of the machine.

Tuck-stitch machines should be run approximately 10% slower than plain-body machines, because of the greater work the cams and needles have to do. Some will say this is too fast; others, that it is too slow. The speed of knitting machines is one of the most important factors to be considered, since production regulates cost of manufacturing and the revolutions per minute materially affect production.

There are at least three philosophies regarding machine operation. The first is to hold production back to minimize wear of the machines; the second, to increase profits by running machines at the greatest possible speed; the third, to operate machines at their maximum earning capacity, and to put aside enough of the earnings to replace machines when they become inefficient or obsolete.

The first method is an old one, often accompanied by the remark: "This machine has been running for thirty years and is just as good as new."

The second method is typical knitting mill practice. It is true increased speed means increased production, but it also means more wear and tear on machines, thereby adding to the cost of maintenance, repairs, depreciation, poor work, needle breakage, etc. This method requires a constant increase of capital for new machinery or the use of worn out machinery at a loss.

Either of the first two methods increases the mill burden and may lead to failure, and the third method of operation is apparently best. However, it must be remembered that what is a good average speed in one mill may be incorrect in another, because a great many things have to be taken into consideration, such as the winding, yarn, stitch, type of machines used, and operators.

When knitting tuck-stitch underwear, one should take special care in selecting material and setting machines in order to insure the production of uniform garments. The charts shown in connection with this article make it possible to record all information and settings needed for any one style; by their use, much time can be saved in setting alike all machines running on a style, and in making sure all garments produced are uniform in size, feel, etc.

Types of Gussets

In Fig. 1 it will be noted that there is nothing in the space marked gussets. This is because this particular style is a vest; for pants or union suits a record should be kept of the type of gusset used. This record should contain such information as the yarn setup, size of machine the cloth is knitted on, stitches, cut, cam and needle setup, etc. For cheap garments, some mills use the same kind of webbing for gussets as is in the rest of the garment, or perhaps tighten the stitch a little. But, as this is the part of the garment that gets most of the wear, it is better to use a somewhat heavier cloth. Some mills simply double the fabric and have two layers of cloth; this will wear well, but is more bulky. It is much better to knit a plated fabric for the gusset. For a style using the same webbing as that described in Fig. 1, a good gusset fabric can be made by plating two 40/1 yarns together. This will give a fabric as heavy as one made with 20/1 yarn, but it will wear much better because of the double thread, and will not be as bulky as two layers of webbing.

In the illustration, under Machine Set-Up, there are two sets of squares, one for the dial needles and one for the cylinder needles. Each square represents a needle slot. In the style shown, all dial needles are in, as shown by the crosses; and the cylinder needles are set 2-4-8, as noted by the crosses inserted and the spaces left empty. For some machines a set of symbols must be used to describe regular-latch, long-latch, short-latch, regular-butt, long-butt, and short-butt needles. Squares representing cams should be filled in with letters describing the cam being used at that feed; for instance, *T* for tuck cam, *P* for plain cam, *B* for blank cam, etc.

Next is the cut of the machine. All knitting machines have a range of yarns governed by the cut, size of

the hook on the needle, and kind of stitch being knitted. Yarns too heavy for the machine will make holes, break off the hooks of the needles, and a general smash may result. Yarns too light for the machine will cause holes, and the fabric may be loose and lacking in body.

Satisfactory Yarn Counts

To determine the average counts of cotton yarn to run on a circular latch-needle machine, square the cut and divide by 6. This will give the best size of yarn to run on any particular cut. Although a somewhat heavier or lighter yarn may be run with good results, it is best to stay as near as possible to the average count; this will result in a better fabric, because the average-count yarn will just fill the spaces between needles, without crowding them, as would be the case in the use of a heavy yarn, or leaving too much space, as would happen if a yarn of too fine a count were used. A fabric made of yarn of the average count will be more elastic, have a much softer feel, appear considerably smoother, and wear better.

The stitch should be tight enough to give the garment good body. When the stitch is counted at the machine, be sure to place the cloth on a flat surface and count at a spot away from the dogs or dial drivers. Great care should be taken to make the stitch look even.

Weights on take-ups cause tension on the fabric. To assure that all stitches and fabrics will look alike, tension on all cloth of a particular style being knitted should be, as nearly as possible, the same. To accomplish this, a record should be kept of the number of weights used on the front or the back of the take-up on every style. This will make sure that fabric produced will be as even as is practically possible, and will also save time in setting machines.

A record of the machine number and the number at which the dial ring is set should also be kept. Preparatory to running a style, set one machine up and make sure the fabric and the garment produced are as nearly perfect as they can be made. Then set the rest of the machines so that the space between the cylinder and the dial is the same as on the first one. This is important, as the setting of the dial ring on tuck-stitch machines has a great deal to do with the length of the garment produced. When the dial is set correctly, tighten the nut on the dial shaft as tight as possible, so the dial will not drop and cause a tighter stitch and shorter garment. A great deal of vibration is caused when the jacks hit the cam levers and may cause this nut to loosen if it is not securely fastened.

Chains differ on various makes of knitting machines: some have a group of high links for tuck and a group of low links for plain, while others merely have high links in between to hit the jacks and change the patterns. Records kept of these will make possible further saving of time in setting up machines.

The measurements shown in Fig. 1 are taken as the garments are knitted, not allowing them to stand, because it takes only a few minutes for garments to start to shrink. If one stands a few minutes longer than another, the two will differ in length when measured. Each part of the garment should be measured as it comes through the take-up. It should be noted that these measurements are for use in the knitting room only.

Cutting-Room Chart

Fig. 2 shows the chart used in the cutting room. Through its use the cutters may check length of garments as they cut them, and, if any garment is off-size, it can be remedied at once. The measurements marked "not steamed" are the ones by which the cutter is guided. This is because the cutters usually receive garments from the knitting room at the end of the day, and by this time the garments have shrunk to the full extent possible without steaming.

The steamed measurements are used to make sure the garments will come up to standard measurements. The garments are steamed to such an extent that there will be no further shrinkage. It is best to allow an inch over standard measurements at this time, because of the loss when the edge of the cloth is trimmed off at the time the garment is sewn. Also, some length is lost when the shoulder straps are sewed on and when the bottom is finished. If 5 in. is added for the shoulder strap on the style shown it will assure all garments being 1 in. above standard measurements.

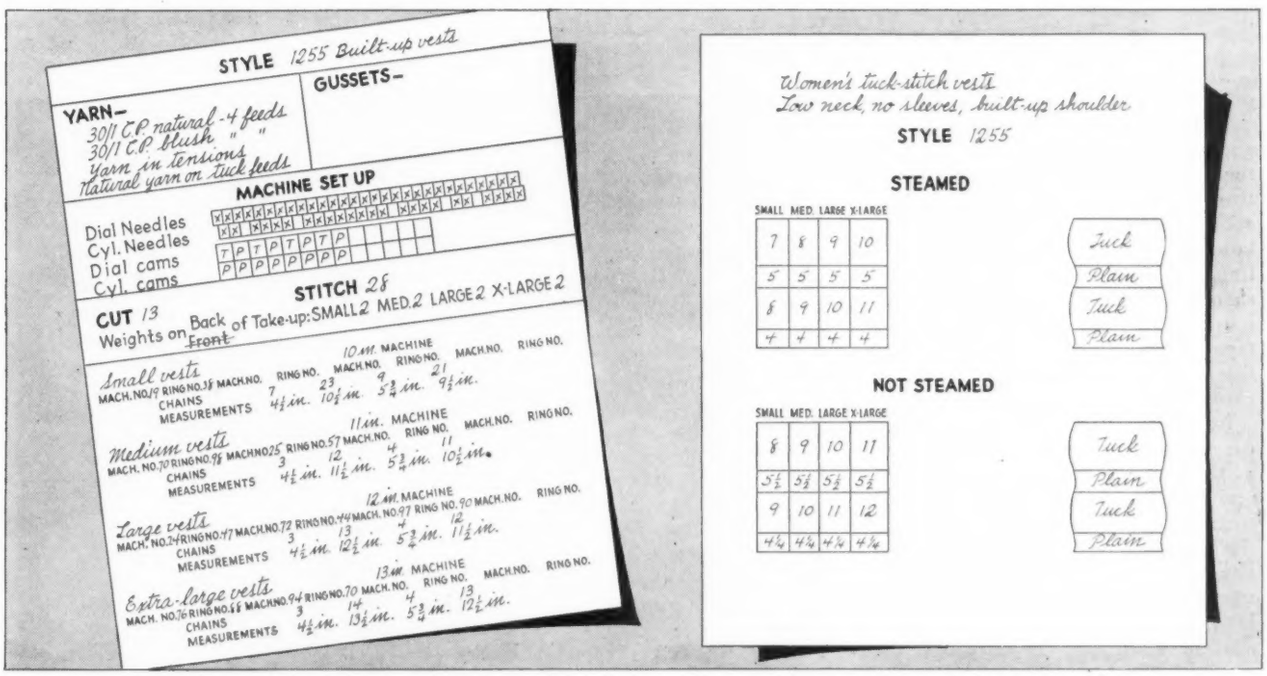


Fig. 1—Complete knitting-room records will save time in setting machines, and make sure all garments produced are uniform in size, feel, etc. Fig. 2—Use of this cutting-room chart enables cutters to check length of garments as they are cut

Modified Crabbing

Puts worsted-serge sports trousering in good condition for subsequent finishing

By G. L. ATKINSON

YARN-DYED worsted serge of a very fine quality has recently come to the fore as a trousering for sports or occasional wear. The fabric is required in a clean-cut finish of almost silky appearance, and must have good tailoring properties. It should be firm yet soft, and not limp or raggy. On account of its extreme fineness, a cloth of this type presents a number of problems to the finisher. Among the faults which must be guarded against are crimp marks, crows-feet, cockling, and variations in width.

Setting of worsted serges is a necessary operation if the above-mentioned faults are to be avoided. On the other hand, the usual method of crabbing tends to flatten the fabric and make it thin or papery. Some finishers omit the crabbing operation; but this practice often leads to a limp and raggy finished material. The writer finds that the best results are obtained by using a modified crabbing procedure which permits the goods to be set under much less tension and pressure than are ordinarily employed.

Borax Solution

This method consists of crabbing in a solution of borax maintained at an alkalinity of about pH 9. The goods are first beamed onto a roller, then run on the crabbing roller, and treated for 3 to 4 min. in the boiling alkaline solution. As crabbing in one bowl is likely to result in uneven setting throughout the piece, the goods should be reversed, or should be run into a second bowl, depending on the type of equipment available. After the second crabbing, the fabric is rinsed well before scouring.

No particular trouble should be encountered in scouring worsted serges, as they usually are not heavily oiled and hence do not require drastic treatment. Care should be taken that the goods are not subjected to excessive tension during scouring. The temperature of the bath should be kept as low as is compatible with efficient scouring. If anything, the goods should be under-scoured rather than over-scoured. The operation should not require more than 35 min. when the fabric is scoured in rope form in a solution of soap and soda. Too much soaping tends to give cover and may cause cracking. During scouring the pieces should be well drafted out.

Precautions in Drying

After scouring, the goods are washed thoroughly in warm water and then rinsed with cold water. Next they are extracted and dried to about 1½ in. over the desired finished width. As these trouserings come in light shades, they should be dried on a machine used for creams and pastel shades. If the mill does not have a dryer which is reserved for light shades, one of the regular dryers should be cleaned thoroughly and a white tape 1½ or 2 in. wide should be placed on each tenter chain. This tape will prevent the fabric from coming in contact with greasy chains or with dirty or rusty pin beds on the machine.

Shearing is particularly important on worsted serges, as they are required in a clean-cut finish, both face and back. The goods are given one run on each side on a hollow- or spring-bed machine, and then a final cut on each side on a solid-bed machine.

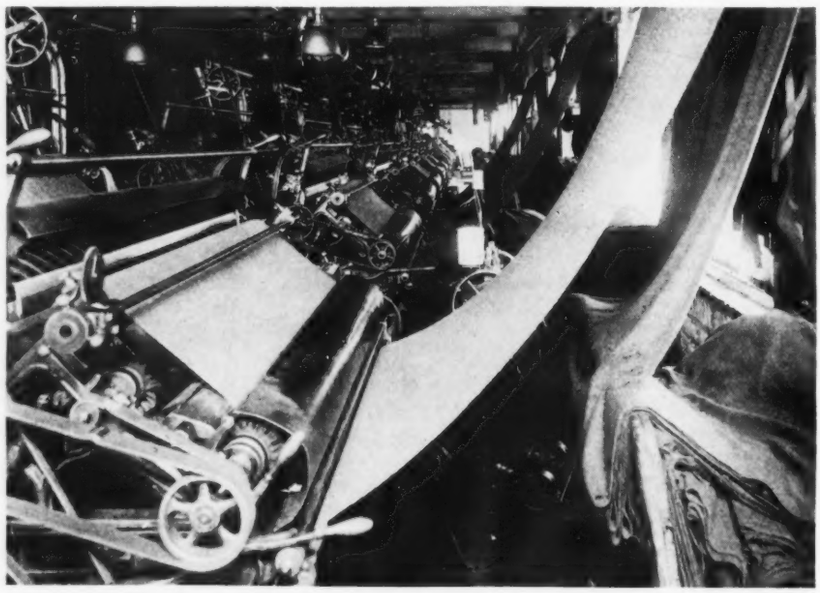
It is advantageous to equip the first machine with emery rollers, so as to prepare the fabric as well as possible for the final shearing.

Next the goods are perched and then are run through a conditioning machine or are lightly dampened and allowed to lie in a pile for 6 to 8 hr. or overnight under damp wrappers. They are now ready for decating. In decating the pumps should not be used and the tension should not be excessive; otherwise wrapper-markings, cross-twilling, or ending may occur.

Steaming and Pressing

It is advisable to steam the fabric between decating and pressing to remove any lay marks which may have formed. The exact method of pressing depends on the equipment available. While the stationary hydraulic press undoubtedly gives the best results, continuous and rotary presses are frequently used, because of the saving in time.

If the stationary press is employed, the fabric must be given a final light steaming on the face to remove the press marks.



Shearing is particularly important on worsted serges, as these fabrics are required in a clean-cut finish, both face and back

New Finishes—New Problems

Investigation needed to determine behavior of treated fabrics during consumer use

BY WINN W. CHASE
Associate Editor, TEXTILE WORLD

SEVERAL PROBLEMS of utmost importance to the textile industry have arisen as the result of the development of new chemicals and processes for finishing various types of textiles. Several forms of synthetic resins, water-repellents which can be applied by the one-bath method, compounds for producing permanent finishes of several different types, mildew preventives, and mothproofing agents are among the chemicals which have come into extensive use in recent years in finishing cotton, rayon, silk, and wool. There is no doubt that these chemicals impart desirable characteristics to the fabrics to which they are applied. However, within the last few months complaints have arisen concerning the behavior under conditions of consumer use of fabrics to which some of the new finishes have been imparted.

A Serious Complaint

What is perhaps the most serious of these complaints—although not the only reason for consumer dissatisfaction—is summarized in a communication received by the writer from a well-known authority on dry cleaning. He states, in brief, that numerous complaints have arisen from the consuming public regarding the cleanability of garments made from fabrics which have been sized or finished with synthetic resins. According to this man:

1. White garments become badly grayed in drycleaning. Treatment of a white fabric overnight with a 2% hydrochloric or sulphuric acid solution fails to remove the synthetic resin or soil and color-bearing material that may have combined with it.

2. In some cases garments which have been drycleaned tend to develop a disagreeable odor.

3. In some instances garments, after drycleaning, have caused poisoning of the wearer where parts of the garments have come in contact with the damp, warm body. It is true that many people are poisoned by synthetic resin pipe-stem and cigarette materials, probably due to the release of such materials as formaldehyde or diphenyl phosphate. Studies indicate that during drycleaning there is a softening and at least partial decomposition of the finishing materials, which in turn give rise to the complaints mentioned above.

A Chemist Replies

Commenting on the assertions made above, a prominent textile chemist with wide experience in the manufacture of synthetic resins and their application to textiles, states in part:

"Finishes which are being used on textile fabrics include (1) regular starch, gum, or oil finishes; (2) nitrocellulose and similar lacquer coatings; (3) water-repellent finishes produced with an aluminum soap and a wax; and (4) synthetic resins applied from water solutions. . . . Of all the groups, the synthetic resin group is the least affected by drycleaning solvents and can be most satisfactorily drycleaned.

"That poisoning is caused by synthetic resins is a serious charge and should be carefully checked. However,

there is no evidence whatsoever to indicate that the resins which go into pipe stems go into fabrics. In fact, the dark-colored molding resins are obviously impossible for use on white garments. It can also be shown that the clear glass-like urea formaldehyde resins are completely insoluble in drycleaning solvents and have been successfully applied to all types of textile fabrics for the last five years.

"If synthetic resins combine to discolor garments a serious problem also arises. But the clear, colorless synthetic resins that are most frequently used for textiles do not soften in the drycleaning solvents and consequently do not pick up the soil suspended in these solvents. There certainly appears to be little justification for the statement that the synthetic resin suffers partial decomposition in cleaning. In view of the fact that the resins are noted for their stability and that temperatures of 400 to 500° F. are necessary even to start any decomposition, it is difficult to see how any drycleaning treatment given delicate fabrics could harm them.

"While synthetic resins for textile use should be fast to washing and drycleaning, it has not been claimed that they are fast to 2% hydrochloric acid solution. Actually, this acid solution is the only chemical treatment recommended for their complete and quantitative removal. One of the few chemicals which would withstand this acid treatment is paraffin wax, and it seems likely that the drycleaners are confusing a water-repellent fabric with a resin treated one."

The Facts and a Recommendation

The facts of the case seem to be these:

1. Difficulty is being experienced in drycleaning fabrics containing certain finishing materials.

2. There are complaints of poisoning alleged to be due to the presence of certain finishing materials in garments which have been drycleaned.

3. There is no definite knowledge as to what, if any, finishing materials are giving rise to these complaints. For this reason, the finishers are unable to make an effective reply to complaints, even though they may be totally unjustified.

4. There is urgent need for a thorough investigation of the behavior during drycleaning and under conditions of consumer use of fabrics which have been treated with synthetic resins, water-repellents of various types, and other finishing materials now commonly employed in the textile industry.

This writer believes that the textile industry should undertake such a research to be carried out under the direction of the United States Institute for Textile Research and the American Association of Textile Chemists & Colorists.

Knitting Lisle Hosiery

On full-fashioned machines calls for alteration of tension devices and other adjustments

By MILTON M. ABRAMS

FROM SOME of the discussions overheard recently, one might gather that lisle hosiery is a new product. Actually, of course, it is as old as the hosiery industry itself. Our mothers wore lisle stockings and thought they were up to the minute in style—as undoubtedly they were. The mill superintendent of the "old school" will well remember how lisle hosiery was manufactured; and there is little difference between the methods formerly employed and those used today. It is true, however, that machinery has been improved and speeded up, gages are finer, and the stockings are styled differently.

There are one or two general observations which should be made before the present-day methods of knitting lisle hosiery are outlined. In the first place, the writer feels that a lisle stocking will always be a lisle stocking and will never be able to capture the beauty and luxury of a silk stocking. While lisle full-fashioned hosiery undoubtedly has its place, the demand for it is still small. A survey conducted by the National Association of Hosiery Manufacturers during the week of Jan. 10, 1938, disclosed that only 1% of the full-fashioned machines in this country had been diverted to the manufacture of lisle or rayon hosiery. The manufacturer contemplating the making of lisle full-fashioned hosiery will find it wise to go slowly and take frequent and careful soundings, rather than to speed blindly into dangerous waters.

Most "chiffon" lisles are made with 90/2 yarn in the toe and 120/2 yarn in the welt, heel, sole, and boot. All yarns should be mercerized and gassed. The stockings are manufactured single carrier. Cones should be of a larger size than the cones now used for lisle welts and foot platings. It can readily be seen that the small cones would run out too quickly and would require constant replacing and watching. The cones should be large enough to give a "steady" run, but not so large that the humidifying glass jars will not comfortably fit over the cones. It may be desired to run the yarn off the cones without using the glass humidifying jars. Care must be taken in this case to watch the ballooning of the thread is it runs off the cone. Too large a balloon may cause kinking of the thread as it unwinds off the cone. Also it may become caught or entangled with the next cone thread or with some part of the machine.

Tension is an important factor in the manufacture of lisle hosiery. All felt pads should be removed from the tension devices feeding the yarn from the cone to the carriers. The felt pads which maintain and equalize the tension on silk as it is fed to the carriers would never permit lisle to slide through. However, some tension must be maintained; otherwise the yarn would run slack and loose.

Style of lisle full-fashioned hosiery promoted for sportswear

Courtesy of Durene Association

A hole is bored through the base of the cups which ordinarily hold the felts, and a large bolt is driven in the center of the hole with the threaded end of the bolt facing upwards.

A nut is threaded down to just below the level of the eyelets in the cup. One felt pad is then placed on top of the nut and one rayon disk placed on top of the felt. These disks are the same as those used for running rayon. The yarn is then threaded through the eyelets and either one or two rayon disks are placed on top of the yarn, depending on the amount of tension required. If the tension is still insufficient, the lower disk can be removed and the yarn run between the felt and the upper disk. To prevent knitters from tampering with and removing the disks a hole can be bored at the top of the bolt and a cotter pin inserted.

Lisle yarn is run dry. There is no conditioning required and no humidification. The moisture cans and water troughs should be emptied and dried before running lisle yarn. Likewise all electric heating and silk-softening boxes should be disconnected.

When running lisle monotop, it is advisable to run four tight courses after the picot and then loosen up a bit. This will help to prevent curling and will make the picot "stand up."

It will be found that needles will last longer when running lisle yarn, as the yarn is not so hard and harsh as silk and will not cut or corrode. The same holds good for the porcelain eyelets at the feed and on the carriers. A little lint may accumulate about the head of the machine (if gassed yarns are used, this is highly improbable), but it can easily be dusted away.

The hosiery should be looped and seamed with cotton, as silk will have a tendency to cut through the cotton fabric. Care should be taken not to knit the welts too tight—plenty of stretch in the welts should be allowed for.

Ventilating the Mill

Combining automatic temperature regulation with introduction of fresh air

By CHARLES L. HUBBARD

A DEFINITE VOLUME of fresh, outside air was formerly considered the one important factor in the ventilation of textile mills. In recent years, however, the methods have undergone changes, and present requirements include temperature regulation, air movement, and humidity control, supplemented by sufficient outside air to give a quality of freshness to the atmosphere of the room.

With most modern arrangements, air movement is taken advantage of to distribute the heat properly and assist to some extent in the rapid diffusion of moisture. In many cases sufficient outside air will be supplied by leakage around windows and infiltration through wall and roof construction.

If more air is needed in certain rooms having a larger number of operatives per unit of space, it may sometimes be admitted through slightly opened windows in such a manner as to be picked up by the warm air currents, without producing uncomfortable down drafts. A possible illustration of this would be in a one-story building with saw-tooth roof, warmed by unit heaters, the general action being similar to that shown in Fig. 1. In other cases it may be necessary to bring the outside air supply to the fan through a special duct.

Unit Heaters

In general, heating and ventilating equipment for textile mills is simpler and less cumbersome than formerly, due largely to the use of unit heaters in this class of work. This device provides temperature control and air movement combined with proper heat distribution. It is particularly adapted for use with those humidifiers which discharge a fine spray directly into the air. If one of these devices is placed a short distance from the heater in the path of the main air current, as shown in Fig. 2, the added moisture is quickly and evenly diffused throughout the room. With this general arrangement, each room or department can be treated separately according to its needs. All required apparatus is compact, light in weight, easily erected, and causes minimum interference with light and machinery.

Automatic temperature regulation is easily obtained by means of a room thermostat, centrally located, which controls the steam supply to the heater. As fin radiators, containing a minimum of metal are commonly used in this work, the storage of heat is comparatively small, resulting in a rapid response to heat requirements. Furthermore, as the air is circulated through the heater at room temperature, there will be no discomfort experienced from cold drafts while steam is shut off.

In large rooms, requiring two or more heaters, a thermostat should be provided for each, so located as to control the temperature of the space supplied by that particular unit. In some cases, however, it may be practical to control two or more of the heaters from the same thermostat. Usually, however, not more than two heaters can be controlled from one thermostat with satisfactory results, and frequently a separate thermostat for each heater is called for.

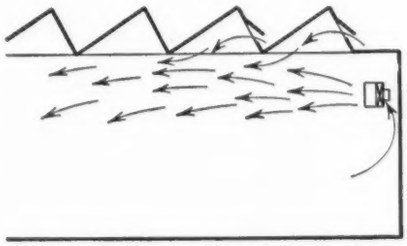


Fig. 1 Air entering slightly opened window in saw-tooth roof is warmed by unit heaters

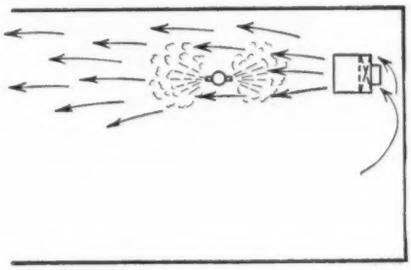


Fig. 2. Added moisture is quickly and evenly diffused throughout the room by this arrangement of humidifier and heater

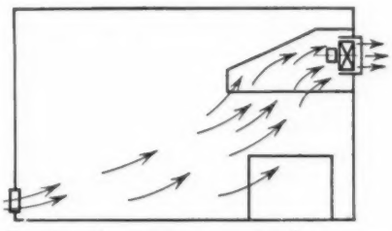


Fig. 3. Air currents arranged to carry dust away from operatives

What has been said regarding temperature control applies equally well, in most cases, to humidity control, and the placing of humidistats.

When provision is made for the introduction of fresh air by means of a duct leading from the outer wall to the fan, an adjustable switch damper should be provided for proportioning the fresh outside air to that returned from the building.

Moisture and Dust

Special departments containing too much moisture, such as dyehouses, etc., require a different treatment from other parts of the plant, the common method being to discharge a comparatively large volume of warm, dry air near the floor. This absorbs the moisture and carries it off through roof ventilators. The air should ordinarily be introduced at a temperature of 70° to 74° F., and the volume should be such as to change the air of the room every 2 to 10 min., according to local requirements. These local requirements include the kind of processes carried on, methods employed, and the heat necessary to maintain a comfortable working temperature.

Dust is another important matter to be considered in connection with ventilation of a textile mill. This is especially true in picker rooms, for example. So far as possible, fine dust should be removed at the source by means of hoods, or similar arrangements, provided with a strong outward draft, which prevents the dust from entering the air of the room. When conditions are such that a hood cannot be used to advantage, the air currents should be so arranged as to carry the dust away from the operatives, as shown in Fig. 3. Fumes from chemicals call for practically the same kind of treatment as does fine dust.

Soaking Rayon Yarn

Difference in take-up of oil and gelatine necessitates strict control of standing-bath method

Recently our Questions & Answers Department received the following inquiry: "We are soaking viscose rayon in a tub and want to use the standing-bath method. Does the rayon take up the oil, size, and water in the same ratio as they exist in the original bath? If not, after a batch has been soaked, how much of each material should be added to bring the bath to its original concentration?" Due to the broad interest in soaking of rayon crepe, we asked a chemist who has had a wide experience in the throwing industry to give his views on the subject. Below is presented his reply. Certain of the points which he raises are controversial, and we shall welcome further comments from any of our readers.

FIRST OF ALL the writer wishes to state that he believes the policy of some mills to use a standing soaking bath is not to their best interests in producing uniform results so far as the finished crepe is concerned. This is because of the fact that, if the mill does not have control of the various factors involved, the finished cloth will vary in the waves per inch.

In any case, a standing bath should not be used more than one day. The spent stock from the extractor should be discarded and, under no circumstances, used.

In using a standing bath, it must be assumed that all of the rayon soaked and processed is to be used for the same purpose; that is to say, to produce a woven fabric having the same number of warp ends; having the same number of picks per inch; and made from the same brand of rayon with the same denier, filament number, and twist at all times. In this case the ratio of oil to size and the ratio of these two to the water used should be constant for any one type of rayon. Also, there should be no variation in the soaking time or soaking temperature. If these precautions are followed, the take-up from the soaking bath of oil, size, and water will be uniform for all soakings.

The actual pick-up of each of the several ingredients used to prepare the soaking bath is dependent on: (1) the ratio of oil to size in the formula, (2) the ratio of oil to water, (3) the ratio of oil to rayon, and (4) the stability of the oil emulsion.

Character of Pebble

The ratio of oil to size or gelatine determines the character of the pebble produced in the finished cloth. The greater the ratio of oil to size, the rougher will be the pebble; in fact, the roughest pebbles are produced with oil alone and no size. To quote a typical practical example. I might mention that a certain brand of oil is used to produce an extremely rough pebble in a 4x4 construction. No size is used in the soaking formula at all. The rayon is 200-denier, 80-filament, 3-turn, semi-dull viscose type. The soaking formula used is 13 lb. of oil to 60 gal. of water, and this soaks 110 lb. of rayon. The rayon is soaked in a tub for 20 min. at 140° F. The spent bath shows that 20% of the initial ratio of oil to water has been taken up by the rayon. In other words, after soaking there is only the proportion of 10 lb. 5 oz. of oil to 60 gal. of water. However, the bath, after the rayon has been removed, has been reduced to 23 gal., or a loss in water of 38½%.

Rayon soaked for crepe purposes must be extracted to a uniform degree if uniform pebble is to be produced. Differences of opinion exist as to what this should be. One throwster has found that extracting to 100% take-up of the crepe soaking ingredients has provided a convenient, uniform method. In other words, the rayon takes up from the bath 23 gal. or 191 lb. of solution, and it should be extracted until it holds 13 gal. or 110 lb. of solution. That is, 110 lb. of rayon, after soaking and extracting, should weigh exactly 220 lb.

If a standing bath were to be used for the rough pebble cited, the make-up would be worked out from the following data:

The starting bath contains 13 lb. of oil to 60 gal. or 0.216 lb. of oil to each gallon of solution. After the first soak, there remains 37 gal. of solution which has been depleted 20% of its oil strength. Therefore, in order to make this bath up to its original volume, it will require 23 gal. of solution, made up in the proportions of 13 lb. of oil to 60 gal. of solution, plus an increase of 1.59 lb. of oil to bring this 60-gal. batch back to its original oil-content strength.

For the finest of pebbles, such as sand crepe, the formula may contain 5 lb. of size to 10 lb. of oil for 60 gal. of solution, which is a sufficient amount of solution to soak 110 lb. of rayon. Thus, in this bath, there is 1% of size and 2% of oil. The oil exhaustion from this bath can readily be determined by the Roberts modified Babcock method, which was described in the July, 1934, issue of TEXTILE WORLD. However, the gelatine exhaustion cannot be so readily determined. It requires a lot of mathematical calculations after a tedious nitrogen determination is made.

Approximate tests have been made by checking the stiffness of the rayon after soaking. These tests indicate that the take-up of water and gelatine are the same. Thus, if the bath, after soaking, shows a loss of 38½% of the total solution, the gelatine loss would be 38%, or a loss of 1.925 lb. of the original gelatine used.

Loss of Gelatine

The word "approximate" in the preceding paragraph is used advisedly, since continual stirring and agitating of gelatine solutions tends to rob them of some of their stiffening qualities, and the tests cannot be considered absolutely reliable. Where the resulting pebble is dependent upon the ratio of size to oil, the stiffness would not be considered a good indicator.

There are a number of oils used in making rayon crepe: Some are used alone for rough pebbles and, for the various other grades of pebbles, used in combination and conjunction with gelatine. The stability of these oils differs considerably among the various manufacturers. The less-stable oils break out of the emulsion more readily and provide a higher take-up of oil by the rayon. Consequently, where you might obtain a 20% take-up of oil in the test described above for this particular make of oil, another make or brand of oil might show 50% take-up and still another make might show only 5% take-up. In other words, the test for take-up must be made for each particular lot of soaking oil.

Staple Cotton Fabrics

By JOHN HOYE

Fabric Technician with W. Harris Thurston, New York

This twenty-seventh instalment of Mr. Hoye's series of articles on staple cotton fabrics—which began in the January, 1936 issue—concerns Turkish toweling (terry cloth).

TURKISH TOWELING

TURKISH TOWELING, or terry cloth, is one of the group known as warp-pile fabrics. The pile consists of small uncut loops, usually on both sides of the cloth, although sometimes these fabrics are made with pile on one side only. Unlike other warp-pile fabrics, such as terry-loop carpets, rugs, velvets, velours, etc., in which the pile is formed by weaving over wires inserted in the shed, the pile loops of these toweling fabrics are formed by a special arrangement in weaving. A dobby-type loom with a special terry motion is necessary. Two warps are used: one forms the pile loops, and the other interlaces with the filling yarns to form the ground cloth. Loops are formed across the width on every third pick; this is known as a three-pick terry weave.

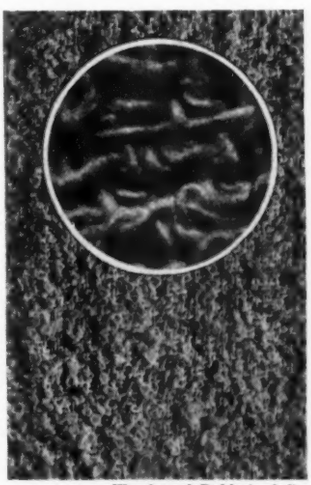
Terry Motion

For formation of the loops, a let-off motion causes the ends on the warp-pile beam to slacken on the third or last pick of the weave. In addition, on the first two picks the reed is arranged so that it does not move forward all the way. Therefore, these picks are not beaten up to the fell or body of the cloth, but are left a short distance from it. When the third pick is woven, the reed moves forward all the way and beats up all three picks at the same time. These picks slide or slip along the ground ends, which are under heavy tension; in so doing they push the slack, or let-off, portion of the warp-pile yarns out in the form of loops.

The ground cloth should be closely woven to withstand the constant pull on the loops during use of the towel. Where long service is required, ply yarns are used. Loops can be formed singly (known as single loop or single thread) or in pairs (known as double loop or double thread). In addition to the three-pick weave already mentioned, there are also four-, five-, and six-pick terry weaves. However, these are usually found in imported towels only. When such weaves are used, the additional picks are woven into the body of the cloth, giving it firmness and additional strength. They also make it more difficult for the loops to pull out during the use of the towel.

In standard, single-loop terry toweling one pile thread interlaces in a two-up one-down motion and the next in a one-up two-down motion. This produces loops on each side of the cloth. The ground threads, interlacing on each side of the loops, also weave in the same manner. In double-loop toweling each pair of pile threads weaves together. The standard, single-loop terry repeats on 4 ends and 3 picks; the double-loop terry on 6 ends and 3 picks.

The ratio of pile-warp threads to ground-warp threads in single-loop terry toweling is 1:1, there being an equal number of pile and ground threads. In double-loop terry toweling there are twice as many pile-warp threads as ground threads. Therefore, if a comparison is made between a single-loop towel and a double-loop towel, both the same weight and made with the same thread count and yarns, the single-loop towel would be superior as far as strength is concerned; but, having fewer pile loops, it would not be so absorbent as the double-loop towel. The double-loop towel would, beside being more absorbent, also be softer in texture. On the other hand, the single-loop towel would be stronger, because it has more interlacings—the ground-warp threads weaving on each side of every loop—whereas, in the double-loop towel, these interlacings take place on each side of every pair of loops.



Woodward Baldwin & Co.

Standard terry toweling, single-thread loop—Approximate thread count, 56 (28 pile, 28 ground) x 34; carded single yarns; bleached

One of the chief assets of Turkish toweling is its power of absorption; therefore, the more loops the better. Loops, however, can vary in length and in type of cotton used. A long-loop pile of soft-spun, good staple length cotton, gives best absorbency. The best towels made are those having a thread count sufficiently high that it combines a dense pile with a strongly and closely woven ground fabric, irrespective of whether single- or double-pile is used. The higher the number of picks used the better the loops will be bound into the body of the cloth. A strong, firm, closely woven selvage is essential. For this purpose ply yarns are often used and, as a rule, selvages are woven with basket weaves. A thorough white bleach is necessary. When colored yarns are used, they must be fast to bleaching.

The cheapest towels made are those with hemmed selvages. To save manufacturing and finishing costs, these are made side by side, two or more to the width, with extra selvages for each. After finishing, they are split apart and the raw edges hemmed and bound. Naturally this type of selvage is not so strong as a woven selvage would be.

Varieties of Turkish Toweling

Many different types of terry towels are made, both because of the different uses to which they will be put, and to comply with retail price ranges. For these reasons, weights for standard 22x44 in. bath towels may vary from 5 oz. to 12 or 13 oz.

Turkish toweling can be classified according to quality and also according to style or design. Classification according to quality can be as follows: standard, single-loop or double-loop towels; fine-yarn towels; and ply-yarn towels.

Mr. Hoye's discussion of Turkish towelings will be continued in an early issue.—Editor.

Superposed Turbine

Thorough investigation should precede installation of new power plant equipment

MANY ENGINEERS believe that under certain conditions superposition of a high-pressure boiler and turbine on the existing power plant offers the large textile mill the best solution to the problem of meeting increased demands for steam and power. A few textile mills have already made installations of so-called "top plants" and other mills are now having them installed.

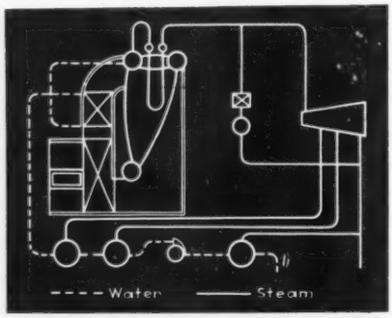
An article by N. T. Pef, in October, 1937, issue of TEXTILE WORLD, considered the general conditions under which superposition is and is not applicable, and discussed the results which could be expected from the installation of a top plant under favorable conditions. Among the comments on the article which we have received is included one from James O. G. Gibbons, a licensed Professional Engineer, in New York and New Jersey, which raises a question as to whether the theoretical results indicated by Mr. Pef can actually be obtained in practice.

Those parts of Mr. Gibbons' letter and of Mr. Pef's reply which are of more general interest are given below.

Mr. Gibbons States

"The article by N. T. Pef, in your October issue, entitled 'Superposed Turbine,' deals with a timely subject, as it is quite true that, not only in textile plants, but in many others, superposition is worthy of consideration. While in no way criticizing the general treatment of the subject, I think, especially in view of the fact that the article will be read by many industrialists who are not engineers, estimates should be based upon results actually obtained in practice; or, if that is not possible, hypothetical examples should be so obviously reasonable that they will be readily accepted by anyone who is at all familiar with the subject. However I am afraid that the example used by Mr. Pef is open to some question.

"I do not question the theoretical possibility of getting results equal to those indicated by Mr. Pef, but I doubt the probability of getting them in practice; and, in view of the much higher flue gas temperatures, I am not at all sure that we shall get better boiler efficiency through the increased pressure. The question of economizers and other methods of reclaiming waste heat takes on added importance.



The installation in question reproduced in part from our October, 1937, issue

"After all, the important question which the business executive will ask is: 'What does it all mean in terms of dollars and cents?' Even if he were to accept Mr. Pef's estimate as to the saving in the cost of fuel, which he should only do after close investigation, that is only part of the story. In the event that he decides to install a 4,000-kw. superposed unit with the necessary boilers and auxiliaries, he will find himself facing an investment of several hundred thousand dollars, with its charges for interest, depreciation, including obsolescence, and taxes; and he must not overlook the question of upkeep, especially in connection with the boilers.

"The owner will also have to consider the possibility of balancing the process steam and power loads, and, if he generates more power than he can use himself, the chances of profitably disposing of it. This may lead to the consideration of additional standby equipment.

"In all probability a new stack will be required, and possibly an addition to the building. To take full advantage of the investment, the most efficient combustion and auxiliary equipment will be required, and most of the steam piping will be new and of the most expensive class.

"I have purposely refrained from giving an estimate of the probable costs and operating efficiencies, but I will say quite definitely that anyone who contemplates such an addition to his plant should prepare himself to think in terms of hundreds of thousands of dollars and not tens of thousands. Before all, he should not hesitate to spend a few hundred dollars upon a thorough preliminary investigation of the problem and the best engineering advise. No part of his investment is likely to pay better dividends then this, for wrong decisions may cost thousands of dollars.

"In conclusion, I think that Mr. Pef has rendered a valuable service in calling attention to the possibilities of superposition, and there is no doubt that the results obtained from it may in some cases be more than satisfactory, but conclusions drawn from purely hypothetical data are likely to be misleading."

Mr. Pef Replies

"I selected a hypothetical plant for discussion, as I could assume conditions that had more general application than would have been possible had I taken some actual case. The superposed power plants on which I had data were not typical. However, the conditions of my hypothetical plant are not theoretical, but are in line with actual plants. Such a power plant can actually be constructed and the results obtained.

"In assuming the various conditions I was careful to see that they were within the limits obtainable, but not necessarily that they were average, since I wanted to use round figures more easily to be remembered.

"Mr. Gibbons takes exception to my statement that with the new boilers the efficiency will be better, saying that high pressure does not necessarily mean higher efficiency. The higher efficiency will not be due to the higher pressure, but to the many improvements that have been made in recent years in boiler design. It is quite safe to say that boilers installed now will be at least 10% and possibly 30% more efficient than boilers 20 years old.

"On the question of cost I am in perfect agreement with Mr. Gibbons. A superposed installation such as described in my article will cost in the vicinity of a half-million dollars; but it is amply justified, because the savings are $75,000 per year, and it will pay for itself in less than 7 years. I agree also that it is false economy to try to economize on a good engineering investigation. Such an undertaking calls for at least two independent investigations."

Loomfixers' Manual

RAYON AND SILK SECTION — *Chapter I*

By H. E. WENRICH

Shuttle Boxes

SINCE LOOM construction and installation have already been discussed in other sections of the Loomfixers' Manual, to avoid repetition it has been thought advisable to start the Rayon and Silk Section with a discussion of the care and adjustment of shuttle boxes. Shuttle boxes are nearly all of the same type, but methods used in making the change from one cell to another are many, and would require several books if each method were illustrated and described. However, the basic principles can be picked out and described sufficiently to enable fixers and learners fully to understand the care and adjustment of shuttle boxes.

In Fig. RS1 are shown a typical two-cell shuttle box and several different types of box swells or shuttle binders. These binders are held in place by a pin extending downward through the shuttle box and through the back ends of the shuttle binders as shown at *A*. The screw, *B*, holds the binder springs, *C*, to the box, and the pressure on the spring bears down on the binder at *D*. It is always advisable, where possible, to use as wide a shuttle binder as the box will allow. For instance, the middle binder of the three shown can be used in the same box as the top one, but having less surface for the shuttle to contact, is not so satisfactory. The more surface the binder contacts, the longer the shuttle will last, and the less pressure is required on the spring.

The bottom shuttle binder of the three shown has a wooden surface for the shuttle to bind against, and will be found an ideal type of binder to be used on the plain- or single-box side of looms to which this type of binder is applicable. This swell is attached to the binder by means of wood screws, and, when worn, can be replaced quickly.

By constant wear the binder spring will gradually wear a hole in the shuttle binder, at point *D*. Many fixers bend the point of the binder spring inward; this increases wear at this point and causes binders to wear out quickly. The binder spring point should be bent outward, as shown at *E*, creating a round surface at the point of contact between the spring and the binder. Should the spring be weak, it can be made to exert more pressure on the shuttle binder by bending at *F*. Shuttle binders which become worn at point *D* can be repaired by welding to fill in the hole and finishing to a smooth surface.

Binding shuttles often break the shuttle box across the top cell at front and back, at the points marked *G* and *H*. This same type of break will at times occur on the bottom cell. Such breaks can easily be repaired by having the broken parts welded on the outside by brazing with bronze. The bronze is easy to file away in removing excess metal; at the same time it makes a clean, strong repair.

Binder pins frequently work loose when the holes become worn. To eliminate this tendency, merely drill a hole in the bottom of the binder pin and, after inserting the pin in its proper position, secure it with a small cotter pin which will prevent the working out of the binder pin. When binder-pin holes have become too large on the top, the hole can be reamed out to hold a bushing. This bushing is screwed down into the metal and makes a lasting repair.

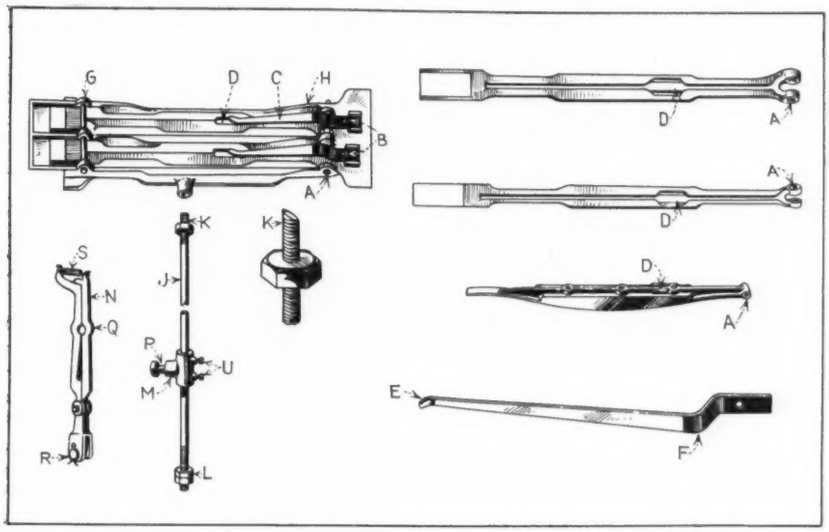


Fig. RS1. Top left, a typical two-cell shuttle box; top right, several types of box swells or shuttle binders; bottom left, giveway connector and box lifter rod; bottom right, shuttle-binder spring, showing shape in which the spring should be bent

Box Lifter Rod

The box lifter rod, *J*, is ground at the top, *K*, shown in the enlarged section. The fact that the top of this rod is not absolutely level permits tilting of the box up or down, to a slight degree, when lining up the shuttle box with the race plate. On some types of box motions the lifter rod may be adjusted at the bottom, the boxes being raised or lowered by a lever arm secured by means of the two nuts shown at *L*.

On some looms there is a tee casting, *M*, which is fastened to a giveway connector, *N*, by means of the stud, *P*, and the hole, *Q*. The giveway connector is, in turn, secured to the long compound lever at the point marked *R*. In case of a jammed box, the giveway connector is brought into play by release of the spring, *S*, in order to prevent a broken box.

To repair the tee casting when the set screws, *U*, become broken, bore new holes in the side and tap for $\frac{5}{16}$-in. set screws. Should the stud become worn, remove the old stud and replace it with a new one. To repair the giveway connector at the hole for the tee casting, have the hole filled with bronze and ream out so the stud will fit properly. If the hole, *R*, needs repairing, it can either be bushed with a brass bushing or brazed and reamed out to proper size. The spring at the top can be renewed when it becomes weak, or the old spring can be used by cutting off a few turns and bending a new hook to fit over the notch of the casting. To make slight adjustments on shuttle boxes equipped with a tee casting, loosen the setscrews and lift

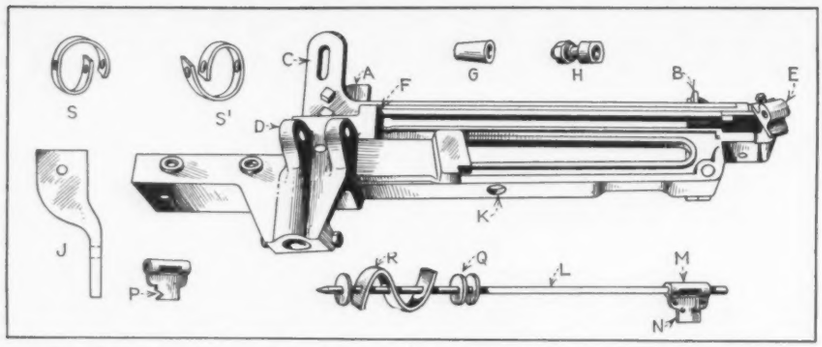


Fig. RS2. Top, box end, back view; bottom, picker rod assembly, top view

or lower the box to the proper place, after which retighten the setscrews.

Picker-Rod Assembly

In Fig. RS2 are shown, top, a back view of a box end and, bottom, a view of the picker rod assembly; *A* is the inside shuttle box guide; *B* is the outside shuttle box guide; *C* is the support for reed hanger stand; *D* is the crank arm-connector stand.

The picker rod is held in place by the picker-rod stand, *E*, in the back and the point of the picker rod fits into the hole or front picker-rod stand, *F*. When the front picker-rod stand becomes slightly worn, the bushing, *G*, is first used as a repair. This is a tapered bushing which fits the worn place. After the hole becomes enlarged to such an extent that the picker rod goes entirely through, the bushing, *H*, is inserted into the hole and secured in place by a nut. If the front picker-rod stand breaks off a temporary repair can be made by twisting a piece of steel into the shape shown at *J*, bolting the bottom hole on to the box end and placing the bushing, *H*, in the other hole.

It is also possible the box end may sometime become broken across the hole, *K*, through which the box lifting rod runs. Breaks of this type can be repaired permanently by fastening a metal plate on the inside of the box end, by means of four short bolts. This plate can be made from stock up to ¼ in. thick. Care should be exercised, in placing the plate, to make certain the hole will be fitted exactly, to allow clearance of the nut on the box lifter rod.

The picker rod, *L*, must be perfectly true in order to drive the shuttle across from box to box in a true line. When placing a picker on the picker rod, the peg in the rawhide picker, *M*, is driven out and the hole enlarged. If the picker rod is 7/16 in., enlarge the hole with a 29/64-in. steel drill. Attention to this simple detail will obviate oiling picker rods, especially on damp days, to prevent the loom banging off. Such banging off may be due either to picker drag, which causes a loss of picking power, resulting in the shuttle banging off on the opposite side, or to sticking of the picker on the forward stroke, thus preventing the shuttle entering the box on the return pick. Of course, an equally good or possibly better way of handling this problem would be to buy pickers drilled with 29/64-in. holes.

Holes in Pickers

Shuttles wear holes in pickers—the larger the shuttle, the quicker will appear the hole—at the point marked *N*. This hole causes the shuttle to bind with a jerky movement and also loses pick. When the box is changing and gives a jerk on the lift or drop, the holes in the rawhide pickers will often be found to be worn too large; the remedy is to reverse the picker on the rod so that a new surface is presented, to cut off the portion of the picker containing the hole, or to cut a V-shaped notch in the picker, as shown at *P*, in such a manner that the box will be able to move up and down without binding. However, there are some instances when this jerky movement is caused by a tight binder or by too much binder spring. If such is the case, it will generally be found that only one box is so affected; whereas, if the picker is at fault, each box on that side will be affected.

Leather washers, *Q*, placed in front of the bumper strap, *R*, will increase the life of the strap many months. When the holes in these washers become worn, the picker catches in the enlarged hole and binds fast at the front of the stroke, causing the loom to bang off. Replace such washers with new ones, which can be made from worn-out bumper straps by cutting them from the good part between the holes.

Bumper straps come in two-, three- and four-hole types for use on silk looms. When one end becomes worn through, the strap can be reversed and the worn end placed up against the inside picker-rod stand. In addition to the manner shown at *R* these straps can be placed on as at *S* or *S'*; folding the strap in this manner keeps it compact, allowing the picker stick a full sweep before hitting the bumper. On wide looms, some fixers prefer this longer sweep.

When pickers on a loom are wearing out on top or bottom, due to the shuttle striking off center, first check the pickers themselves, to make sure they are straight. If this is the case, the following procedure of aligning shuttle boxes in relation to the race plate, so that the shuttle will hit the exact center of the picker, will eliminate the fault. First, lay a 3-ft. straightedge, or longer if such is available, on edge lengthwise on the race plate. Place the shuttle in operating position on the race plate so the point of the shuttle comes in contact with the straight edge. Mark the point of contact, as this point must now become the exact center from top to bottom on the face of the picker. Move the straightedge into the box and place it in touch with the picker as it is seated at its extreme back position, with its face 1/16 in. in front of the outside box-guide. Should the center of shuttle impact be too high, the laysword must be removed and the under part of the lay cut away in such a manner that the lay will fit lower on the box end, thus lowering the shuttle box so that the shuttle will strike the picker in the proper position. To do this, place the bare lay end in a vise and cut it with a wood chisel. Do not cut too deeply, as it is far better to make several cuts, testing after each, than to take off too much wood and have to raise the lay with packing.

Should the center of the shuttle impact on the picker be too low, the lay can be raised by placing packing under its end. Such packing can be cut from wrapping paper or cardboard, placing in as much as is necessary to raise the lay the distance required so the shuttle will strike the picker at the position desired. It should be noted that in modern looms the lay end is a separate casting and is equipped with picker guides. These make possible adjustment without the cutting required on older looms.

If the shuttle is hitting off center across the face of the rawhide picker, either too far front or too far back, the best procedure is to secure pickers of a different size, so that it will not be necessary to adjust this part every time a new picker is placed on the loom. However, a temporary method of overcoming this fault is to pack the outside picker-rod stand with a piece of leather at top and bottom, in case the shuttle is striking on the inside center of the picker, and to grind part of the picker-rod stand away, so the stand will fit more closely, if the shuttle is striking on the outside center of the picker.

Loomfixers' Manual

COTTON SECTION — *Chapter III (Continued)*

By IVAR MOBERG

Loom Driving and Braking Motions

FOR INDIVIDUAL drive of looms 220- or 550-volt, 60-cycle, ½- to 1½-hp., 3-phase, a-c., totally inclosed motors are in general use. They are located on specially constructed motor-brackets at the driving side of the loom. Power transmission is nearly always through cut spur gears, either directly to the crankshaft or through an auxiliary driving shaft, sometimes called a compound drive-shaft.

In locating loom motors on their brackets, they should be lined up with the loom driving shaft. Motor plates should be filed so they are level, and their four motor-support points should be of uniform height, so the motors will not rock. Final location of motors should be determined with pressure applied to the friction so that the face of the pinion gear can be lined up with the friction gear in running position. Gears should be meshed as closely as possible without causing binding. In their final position motors should be level, parallel to the driving shaft, and securely bolted to the motor plates. Some mills prefer to have motor plates dowel-pinned to brackets to eliminate any possibility of their sliding out of place. This is not absolutely necessary, but all parts must be tightly bolted in proper place. There is a distinct shock, or pounding, of the gears at pick and beatup and, unless every bolt is drawn up tightly, gears have a tendency to be pounded out of proper mesh. Another important thing to observe is that cut gears should never be turned over without first receiving a protecting coat of proper lubricant.

Fig. C20 shows a Draper loom arrangement for friction-disk motor drive. Adjustment of this disk friction is very simple. The steps are as follows:

First, push the disk friction gear against the friction disk and see that it makes contact all the way round. On new looms it will always contact, unless something has gone wrong during manufacture. On old looms, the outside bearings on which the disk friction gear runs may be worn; it is possible that this bearing has been bolted down without being lined up with the shaft. In this case the bearing must be leveled by filing the blocks underneath, and adjusted so that it will be parallel sideways with the shaft. The disk friction gear must contact the friction disk all around, to obtain sufficient friction without excessive pressure.

Second, unscrew the adjusting screw in the friction-clutch lever stand, so the lever can be moved up against the stand. On right-hand looms, adjust the length of the shipper rod by loosening the setscrews in the shipper sleeve and moving it on the rod until the disk-friction gear is about ⅛ in. from the friction disk, with the clutch lever against the lever stand. Then, retighten the setscrews. On left-hand looms there is no shipper rod, but there should be ⅛-in clearance between friction gear and disk, with the adjusting screw backed off.

Third, pull the shipper handle into the "on" position. At this point the disk friction gear should still be free from the friction disk. Now, turn the adjusting screw in the lever stand until the disk friction gear is gently pressed against the friction disk.

Fourth, throw the shipper handle off and start the motor. Remove shuttle from loom and place daggers against frog steels. Adjust the pressure by turning the adjusting screw so that the friction will just barely stop the motor when the shipper is pulled into the "on" position. Tighten the check nut on the adjusting screw. In making this test be quick to throw the shipper handle off as soon as the motor is stopped, otherwise a fuse may burn out.

Fifth, with clutch lever against the adjusting screw set the lever clamp against the ball point on the back of the lever so as to control the fulcrum of the lever. With the shipper handle in the "on" position set the friction pulley guide as close to the flange of the disk friction pulley as possible, without actually touching it. This serves to pull the disk friction gear out of contact with the friction disk when shipper handle is thrown off.

Sixth, compress the shipper-sleeve spring by moving the spring collar until the desired tension is obtained. This collar also serves to hold the shipper sleeve in such a position that its lug will not bind in the slot of the clutch lever when the shipper handle is pulled on, or thrown off. Therefore, before tightening the setscrew in the spring collar it should be turned until it tilts the shipper sleeve in such a position that the lug is free from the ends of the slot in the clutch lever, with the shipper handle both on and off.

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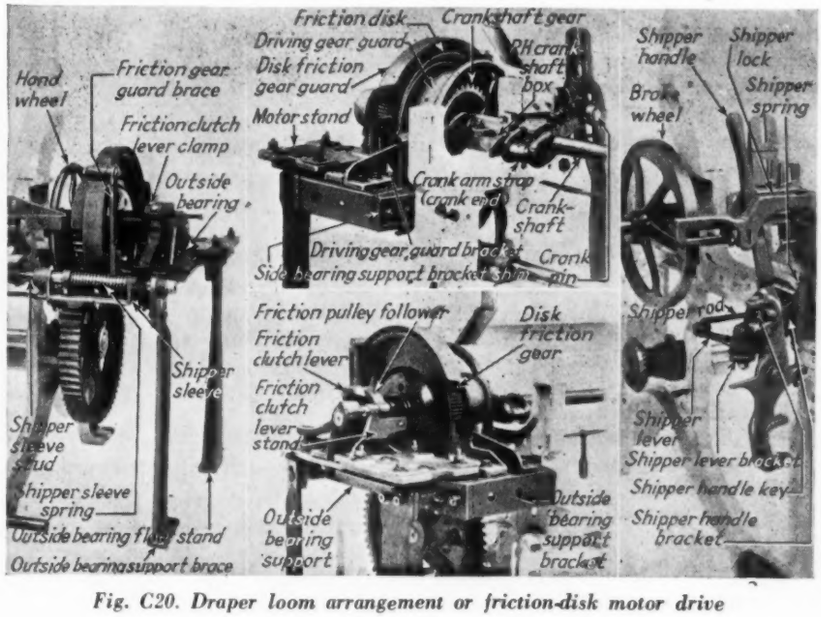


Fig. C20. Draper loom arrangement or friction-disk motor drive

FREE FOR THE ASKING

READERS interested in literature reviewed on this page may secure copies by writing to TEXTILE WORLD, 330 West 42d St., New York, giving their company connection.

Wetting Agents. Rohm & Haas Co. 40-page booklet includes a study of wetting agents and the factors contributing to their activity, with special reference to this company's product, "Triton W-30."

Brine Making. International Salt Co., Inc. Bulletin describes the Lixate process for making brine; includes data on savings made possible by this process, cost of installation, etc.

Mercury Lighting. General Electric Vapor Lamp Co. 12-page booklet describes new combination Cooper Hewitt-incandescent lamps and their uses in industry. Includes data for computing spacing between lamps, and other engineering information.

Spinning Frames. H & B American Machine Co. Catalog No. 71 contains 100 pages of technical data on cotton spinning frames, including various formulas and tables.

Sizing. Charles B. Johnson. January issue of *Rayon Warp Sizing Specialist* includes several articles on rayon and acetate sizing, and illustrates some of company's products.

Flexible Hose. Packless Metal Products Corp. Loose-leaf data sheets describe company's line of seamless flexible metal hose and include engineering information on construction, installation, etc.

Lighting. General Electric Co. Illustrated booklet describes processes used in manufacture of company's electric light bulbs; includes data on distribution of company's factories, warehouses, etc., and charts showing comparative costs of electric lighting from 1907 to 1935.

Materials Handling. Mathews Conveyor Co. 42-page booklet describes industrial advantages of conveyor use; contains information on various types of conveyors; illustrates many installations of company's products.

Mechanical Rubber Goods. Cincinnati Rubber Mfg. Co. Illustrated booklet describes uses of company's transmission belting, conveyor belting, industrial rubber hose, and other items; includes specification data.

Compressors. Ingersoll-Rand Co. Illustrated booklet on electric-driven direct-connected compressors describes company's products in this classification, lists operating advantages, describes numerous industrial applications.

Fatty Alcohol Sulphates. Gardinol Corp.; Selling agents: Procter & Gamble, National Aniline & Chemical Co., E. I. du Pont de Nemours & Co., Inc. Three booklets, "Gardinol for Cotton and Linen," "Gardinol for Silk and Rayon," and "Gardinol for Wool and Unions." Each booklet discusses welting, detergent, and other properties of Gardinol WA and Gardinol WS and then describes specific applications in field covered by particular booklet, giving formulas, methods of application, and other technical data.

Stokers. Detroit Stoker Co. Pamphlet describes company's products, explains many of their features, illustrates various installations.

Electric Cable. Anaconda Wire & Cable Co. Booklet describes and illustrates engineering features of company's Parkway cable; contains tabular data concerning physical properties, etc.

Dyes. Ciba Co., Inc. January issue of *Ciba Review* contains articles on the development of tapestry weaving, dyeing, etc.; supplement contains information on Chlorantine Fast Blue 3GLL and Chlorantine Fast Green 5 GLL.

Softeners. National Oil Products Co. Booklet describes company's line of softeners and oils, tallows, wax finishes, and other finishing products.

Motors. Westinghouse Electric & Mfg. Co. 12-page publication describes and illustrates requirements which must be met when selecting a motor and control equipment; also includes a section on preventive maintenance.

Motor Bases. American Pulley Co. Catalog MB-38 describes the construction and application of this company's tension control motor base; includes engineering and application data.

Twisting. Atwood Machine Co. January issue of *Atwood Twists* contains information on new twisting equipment; illustrates replacement parts for winders and twisters.

Belting. Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc. Folder describes application and advantages of company's Condor Compensated belting; includes data on horsepower calculations.

Steam Jets. Duriron Co. Illustrated bulletin describes steam jets, ejectors, tank outlets, and spray nozzles; includes capacity tables, selection charts, and other data.

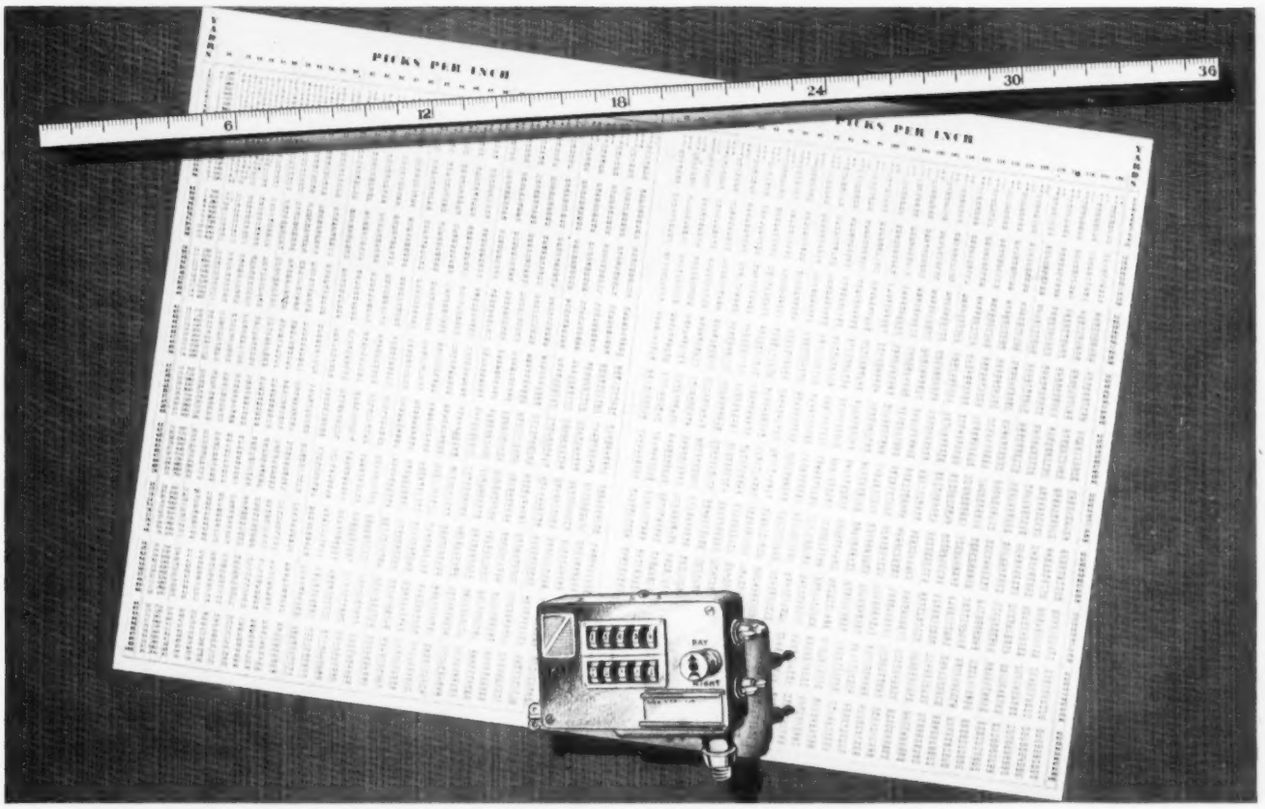
Weaving Equipment. Draper Corp. February issue of *Cotton Chats* discusses importance of modernizing weaving equipment, and cites production increases made possible by new machines developed.

Air Conditioning. Carrier Engineering Corp. Booklet describes and illustrates company's air conditioning, refrigeration, and heating equipment for industrial and home use.

Knitting Machinery. Wildman Mfg. Co. Leaflet describes and illustrates fabric produced on the Wildman rayon pattern knitting machine.

Friction Clutches. Carlyle Johnson Machine Co. New catalog contains data on company's line of clutches, including dimensions, specifications, price information, and diagrams of clutch parts.

Stainless Steel. Republic Steel Corp. Booklet entitled "Enduro 18-8 Types" describes company's stainless steel; contains data on physical properties, fabrication, etc., including several textile applications.



Picks & Yards

Conversion table saves time, prevents errors, eliminates laborious weave-room calculations

By W. F. PARRY

THE CONVERSION table given on the next two pages shows at a glance the number of picks required to weave any length of cloth up to 100 yd. Mills using pick counters on their looms, will find it particularly useful. It will save time, prevent calculation errors, and provide a ready method of checking yards with picks.

Purposes for which the table can be used include the following:

1. To determine without guesswork the number of picks required to weave any definite yardage of cloth.
2. To check the yardage of cloth on the loom when the cut mark is missing.
3. To check excessive pickgear discrepancies.
4. To discover theft of cloth by dishonest workers.
5. To check yardage of filling without cutting the cloth from the loom.

The table, like a pick-clock, is calculated to the nearest thousand picks, and is close enough for all practical purposes, because looms seldom make the exact pickage that the pickgear indicates. There are frequently about 5% more picks per inch in the cloth than is expected, due to a number of causes, such as slight shrinkage of cloth when taken off loom, excess warp tension, variation in circumference of sand roll, type of weave, etc.

No figures are given for a lower pickage than 10 picks per inch. If 6 picks are used, take 1/10 of the 60 column; if 8 picks are used, take 1/10 of the 80 column, etc. For example, 50 yd. at 80 picks = 144 thousand picks; therefore 50 yd. at 8 picks = 14 thousand picks.

In the first vertical column of the table the full pickage has been given, merely as a basis for calculation, but only the thousands will show on the loom pick counter. When the results are less than 10 thousand picks, the tables are carried to one decimal place, merely to show how near they are to full numbers.

Only the even numbers of picks per inch are used, as it would be a waste of space to figure closer. An example will illustrate how simple it is to obtain the pickage with an odd number of picks per inch. If the pickage in 50 yd. at 45 picks is wanted, it will be found that 50 yd. at 44 picks per inch = 79 thousand picks; 50 yd. at 46 picks per inch = 83 thousand picks; therefore 50 yd. at 45 picks per inch must be halfway between these numbers, or 81 thousand picks.

For work involving yardages from 100 to 200 yd. the values shown on the table for picks can be doubled; to determine the picks in a 120 yd. cut, double number shown for 60 yd.

PICKS PER INCH

YARDS	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70
1	0.360	0.4	0.5	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.6	1.7	1.7	1.8	1.9	1.9	2.0	2.1	2.2	2.2	2.3	2.4	2.4	2.5
2	0.720	0.9	1.0	1.2	1.3	1.4	1.6	1.7	1.9	2.0	2.2	2.3	2.5	2.6	2.7	2.9	3.0	3.2	3.3	3.5	3.6	3.7	3.9	4.0	4.2	4.3	4.5	4.6	4.8	4.9	5.0
3	1.080	1.3	1.5	1.7	1.9	2.2	2.4	2.6	2.8	3.0	3.2	3.5	3.7	3.9	4.1	4.3	4.5	4.8	5.0	5.2	5.4	5.6	5.8	6.0	6.3	6.5	6.7	6.9	7.1	7.3	7.6
4	1.440	1.7	2.0	2.3	2.6	2.9	3.2	3.5	3.7	4.0	4.3	4.6	4.9	5.2	5.5	5.8	6.0	6.3	6.6	6.9	7.2	7.5	7.8	8.1	8.4	8.6	8.9	9.2	9.5	9.8	10
5	1.800	2.2	2.5	2.9	3.2	3.6	4.0	4.3	4.7	5.0	5.4	5.8	6.1	6.5	6.8	7.2	7.6	7.9	8.3	8.6	9.0	9.4	9.7	10	10	11	11	12	12	12	13
6	2.160	2.6	3.0	3.5	3.9	4.3	4.8	5.2	5.6	6.0	6.5	6.9	7.3	7.8	8.2	8.6	9.1	9.5	9.9	10	11	11	12	12	13	13	13	14	14	15	15
7	2.520	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.1	7.6	8.1	8.6	9.1	9.6	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18
8	2.880	3.5	4.0	4.6	5.2	5.8	6.3	6.9	7.5	8.1	8.6	9.2	9.8	10	11	12	12	13	13	14	15	15	16	16	17	17	18	18	19	20	20
9	3.240	3.9	4.5	5.2	5.8	6.5	7.1	7.7	8.4	9.1	9.7	10	11	12	12	13	14	14	15	16	16	17	18	18	19	19	20	21	22	22	23
10	3.600	4.3	5.0	5.8	6.5	7.2	7.9	8.7	9.3	10	11	12	12	13	14	15	15	16	17	17	18	19	20	20	21	22	22	23	24	25	25
11	3.960	4.7	5.5	6.3	7.1	7.9	8.7	9.5	10	11	12	13	14	14	15	16	17	18	18	19	20	21	22	22	23	24	25	25	26	27	28
12	4.320	5.2	6.0	6.9	7.8	8.6	9.5	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	24	25	26	27	28	29	30	30
13	4.680	5.6	6.6	7.5	8.4	9.4	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	25	26	27	28	29	30	31	32	33
14	5.040	6.0	7.1	8.1	9.1	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
15	5.400	6.5	7.6	8.6	9.7	11	12	13	14	15	16	17	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	35	36	37	38
16	5.760	6.9	8.1	9.2	10	12	13	14	15	16	17	18	20	21	22	23	24	25	27	28	29	30	31	32	33	35	36	37	38	39	40
17	6.120	7.3	8.6	9.8	11	12	14	15	16	17	18	20	21	22	23	25	26	27	28	30	31	32	33	34	36	37	38	39	41	42	43
18	6.480	7.8	9.1	10	12	13	14	16	17	18	19	21	22	24	25	26	27	29	30	31	33	34	35	36	38	39	40	42	43	44	45
19	6.840	8.2	9.6	11	12	14	15	17	18	19	21	22	23	25	26	27	29	30	31	33	34	36	37	38	40	41	43	44	45	47	48
20	7.200	8.6	10	12	13	15	16	17	19	20	22	23	25	26	27	29	30	32	33	35	36	38	39	40	42	43	45	46	48	49	51
21	7.560	9.1	11	12	14	15	17	18	20	21	23	24	26	27	29	30	32	33	35	36	38	39	41	42	44	45	47	48	50	52	53
22	7.920	9.5	11	13	14	16	18	19	21	22	24	25	27	29	30	32	33	35	37	38	40	41	43	44	46	48	49	51	52	54	56
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24	8.640	10	12	14	16	17	19	21	23	24	26	28	30	31	33	35	36	38	40	42	43	45	47	48	50	52	54	55	57	59	61
25	9.000	11	13	15	16	18	20	22	24	25	27	29	31	33	34	36	38	40	42	43	45	47	49	51	52	54	56	58	60	61	63
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28	10.080	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	65	67	69	71
29	10.440	13	15	17	19	21	23	25	27	29	31	33	35	38	40	42	44	46	48	50	52	54	56	58	61	63	65	67	69	71	73
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33	11.880	14	17	19	22	24	26	29	31	33	36	38	41	43	45	48	50	52	55	57	60	62	64	67	69	71	74	76	79	81	83
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35	12.600	15	18	20	23	25	28	30	33	35	38	40	43	45	48	50	53	56	58	61	63	66	68	71	73	76	78	81	83	86	88
36	12.960	16	18	21	24	26	29	31	34	36	39	42	44	47	49	52	54	57	60	62	65	67	70	73	75	78	80	83	86	88	91
37	13.320	16	19	21	24	27	29	32	35	37	40	43	46	48	51	53	56	59	61	64	67	69	72	75	77	80	83	85	88	91	93
38	13.680	16	19	22	25	27	30	33	36	38	41	44	47	49	52	55	58	60	63	66	69	71	74	77	79	82	85	88	90	93	96
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41	14.760	18	21	24	27	30	33	36	39	41	44	47	50	53	56	59	62	65	68	71	74	77	80	83	86	89	92	95	98	100	103
42	15.120	18	21	24	27	30	33	36	39	42	45	49	52	54	58	61	64	67	70	73	76	79	82	85	88	91	94	97	100	103	106
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44	15.840	19	22	25	29	32	35	38	41	44	48	51	54	57	60	63	67	70	73	76	79	82	86	89	92	95	98	101	105	108	111
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46	16.560	20	23	27	30	33	37	40	43	46	50	53	56	60	63	66	70	73	76	80	83	86	90	93	96	99	103	106	109	113	116
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52	18.720	23	26	30	34	38	41	45	49	53	56	60	64	67	71	75	79	82	86	90	94	97	101	105	109	112	116	120	124	127	131
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56	20.160	24	28	32	36	40	44	48	53	57	61	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125	129	133	137	141
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60	21.600	26	30	35	39	43	48	52	56	61	65	69	74	78	82	87	91	95	99	104	108	112	117	121	125	130	134	138	143	147	151
61	21.960	26	31	35	40	44	48	53	57	62	66	70	75	79	84	88	92	97	101	106	110	114	119	123	127	132	136	141	145	149	154
62	22.320	27	31	36	40	45	49	54	58	63	67	72	76	80	85	89	94	98	103	107	112	116	121	125	130	134	138	143	147	152	156
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65	23.400	28	33	38	42	47	52	56	61	66	70	75	80	84	89	94	98	103	108	112	117	122	126	131	136	141	145	150	155	159	164
66	23.760	29	33	38	43	48	52	57	62	67	71	76	81	86	90	95	100	105	109	114	119	124	128	133	138	143	147	152	157	162	166
67	24.120	29	34	39	44	48	53	58	63	68	72	77	82	87	92	97	101	106	111	116	121	126	130	135	140	145	150	154	159	164	169
68	24.480	30	34	39	44	49	54	59	64	69	74	78	83	88	93	98	103	108	113	118	123	127	132	137	142	147	152	157	162	167	171
69	24.840	30	35	40	45	50	55	60	65	70	75	80	85	90	94	99	104	109	114	119	124	129	134	139	144	149	154	159	164	169	174
70	25.200	30	35	40	45	51	56	61	66	71	76	81	86	91	96	101	106	111	116	121	126	131	136	141	146	151	156	161	166	171	176
71	25.560	31	36	41	46	51	56	61	67	72	77	82	87	92	97	102	107	113	118	123	128	133	138	143	148	153	159	164	169	174	179
72	25.920	31	36	42	47	52	57	62	67	73	78	83	88	93	99	104	109	114	119	125	130	135	140	145	150	156	161	166	171	176	181
73	26.280	32	37	42	47	53	58	63	68	74	79	84	89	95	100	105	110	116	121	126	132	137	142	147	153	158	163	168	174	179	184
74	26.640	32	37	43	48	53	59	64	69	75	80	85	91	96	101	107	112	117	123	128	133	139	144	149	155	160	165	171	176	181	187
75	27.000	33	38	43	49	54	60	65	70	76	81	87	92	97	103	108	114	119	124	130	135	141	146	151	157	162	168	173	178	184	189
76	27.360	33	38	44	49	55	60	66	71	77	82	88	93	99	104	110	115	120	126	131	137	142	148	153	159	164	170	175	181	186	192
77	27.720	33	39	44	50	56	61	67	72	78	83	89	94	100	105	111	117	122	128	133	139	144	150	155	161	166	172	178	183	189	194
78	28.080	34	39	45	51	56	62	67	73	79	84	90	96	101	107	112	118	124	129	135	141	146	152	157	163	169	174	180	185	191	197
79	28.440	34	40	46	51	57	63	68	74	80	85	91	97	102	108	114	120	125	131	137	142	148	154	159	165	171	176	182	188	193	199
80	28.800	35	40	46	52	58	63	69	75	81	87	92	98	104	110	115	121	127	133	138	144	150	156	161	167	173	179	184	190	196	202
81	29.160	35	41	47	53	58	64	70	76	82	88	93	99	105	111	117	123	128	134	140	146	152	158	163	169	175	181	187	193	198	204
82	29.520	36	41	47	53	59	65	71	77	83	89	95	100	106	112	118	124	130	136	142	148	154	160	165	171	177	183	189	195	201	207
83	29.880	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126	132	138	144	150	155	161	167	173	179	185	191	197	203	209
84	30.240	36	42	48	55	61	67	73	79	85	91	97	103	109	115	121	127	133	139	145	151	157	163	169	175	182	188	194	200	206	212
85	30.600	37	43	49	55	61	67	74	80	86	92	98	104	110	116	123	129	135	141	147	153	159	165	171	178	184	190	196	202	208	214
86	30.960	37	43	50	56	62	68	74	81	87	93	99	105	112	118	124	130	136	143	149	155	161	167	173	180	186	192	198	204	211	217
87	31.320	38	44	50	56	63	69	75	82	88	94	100	107	113	119	125	132	138	144	150	157	163	169	175	182	188	194	201	207	213	219
88	31.680	38	44	51	57	63	70	76	82	89	95	101	108	114	120	127	133	139	146	152	159	165	171	178	184	190	197	203	209	215	222
89	32.040	39	45	51	58	64	71	77	83	90	96	103	109	115	122	128	135	141	147	154	160	167	173	180	186	192	199	205	212	218	224
90	32.400	39	45	52	58	65	71	78	84	91	97	104	111	117	123	130	136	143	149	156	162	169	175	182	188	195	201	207	214	220	227
91	32.760	39	46	53	59	66	72	79	85	92	98	105	112	118	125	131	138	144	151	157	164	170	177	184	190	197	203	210	216	223	229
92	33.120	40	46	53	60	66	73	80	86	93	99	106	113	119	126	133	139	146	152	159	166	172	179	186	192	199	205	212	219	225	232
93	33.480	40	47	54	60	67	74	80	87	94	101	107	114	121	127	134	141	147	154	161	168	174	181	188	194	201	208	214	221	228	234
94	33.840	41	47	54	61	68	75	81	88	95	102	108	115	122	129	135	142	149	156	163	169	176	183	190	196	203	210	217	223	230	237
95	34.200	41	48	55	62	69	75	82	89	96	103	110	116	123	130	137	144	151	157	164	171	178	185	192	198	205	212	219	226	233	239
96	34.560	42	48	55	62	69	76	83	90	97	104	111	118	125	131	138	145	152	159	166	173	180	187	194	201	207	214	221	228	235	242
97	34.920	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	147	154	161	168	175	182	189	196	203	210	217	224	231	237	244
98	35.280	42	49	57	64	71	78	85	92	99	106	113	120	127	134	141	148	155	162	169	177	184	191	198	205	212	219	226	233	240	247
99	35.640	43	50	57	64	71	79	86	93	100	107	114	121	128	136	143	150	157	164	171	178	185	193	200	207	214	221	228	235	242	250
100	36.000	43	50	58	65	72	79	86	94	101	108	115	123	130	137	144	151	158	166	173	180	187	195	202	209	216	223	231	238	245	252

PICKS PER INCH

72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114	116	118	120	122	124	126	128	130	YARDS
2.6	2.7	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.2	3.3	3.4	3.5	3.5	3.6	3.7	3.7	3.8	3.9	4.0	4.0	4.1	4.2	4.3	4.3	4.4	4.5	4.5	4.6	4.7	1
5.2	5.3	5.5	5.6	5.8	5.9	6.0	6.2	6.3	6.5	6.6	6.8	6.9	7.1	7.2	7.3	7.5	7.6	7.8	7.9	8.1	8.2	8.4	8.5	8.6	8.8	8.9	9.1	9.2	9.4	2
7.8	8.0	8.2	8.4	8.6	8.9	9.1	9.3	9.5	9.7	9.9	10	10	11	11	11	11	11	12	12	12	12	13	13	13	13	13	14	14	14	3
10	11	11	11	12	12	12	12	13	13	13	14	14	14	14	15	15	15	16	16	16	16	17	17	17	18	18	18	18	19	4
13	13	14	14	14	15	15	15	16	16	17	17	17	18	18	18	19	19	20	20	20	21	21	21	22	22	22	23	23	23	5
16	16	16	17	17	18	18	19	19	19	20	20	21	21	22	22	22	23	24	24	24	25	25	26	26	26	27	27	28	28	6
18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30	31	31	32	32	33	7
21	21	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	30	31	32	32	33	33	34	35	35	36	36	37	37	8
24	24	25	25	26	27	27	28	29	29	30	31	31	32	33	33	34	34	35	36	36	37	38	38	39	40	40	41	42	42	9
26	27	27	28	29	30	30	31	32	33	33	34	35	35	36	37	38	38	39	40	40	41	42	43	43	44	45	45	46	47	10
29	29	30	31	32	33	33	34	35	36	37	37	38	39	40	40	41	42	43	44	44	45	46	47	48	48	49	50	51	52	11
31	32	33	34	35	36	36	37	38	39	40	41	42	42	43	44	45	46	47	48	48	49	50	51	52	53	54	55	55	56	12
34	35	36	37	38	39	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	53	54	55	56	57	58	59	60	61	13
36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	14
39	40	41	42	43	44	45	46	48	49	50	51	52	53	54	55	56	57	58	59	61	62	63	64	65	66	67	68	69	70	15
42	43	44	45	46	47	49	50	51	52	53	54	55	57	58	59	60	61	62	63	65	66	67	68	69	70	72	73	74	75	16
44	46	47	48	49	50	52	53	54	55	56	58	59	60	61	63	64	65	66	67	69	70	71	72	74	75	76	77	78	80	17
47	48	49	51	52	53	54	56	57	58	60	61	62	64	65	66	67	69	70	71	73	74	75	77	78	79	80	82	83	84	18
49	51	52	54	55	56	58	59	60	62	63	64	66	67	69	70	71	73	74	75	77	78	79	81	82	84	85	86	88	89	19
52	53	55	56	58	59	61	62	63	65	66	68	69	71	72	74	75	76	78	79	81	82	84	85	87	88	89	91	92	94	20
54	56	58	59	61	62	64	65	67	68	70	71	73	74	76	77	79	80	82	83	85	86	88	89	91	92	94	95	97	98	21
57	59	60	62	63	65	67	68	70	71	73	75	76	78	79	81	82	84	86	87	89	90	92	94	95	97	98	100	101	103	22
60	61	63	65	66	68	70	71	73	75	76	78	80	81	83	85	86	88	90	91	93	94	96	98	99	101	103	104	106	108	23
62	64	66	67	69	71	73	74	76	78	80	81	83	85	87	88	90	92	93	95	97	99	100	102	104	106	107	109	111	112	24
65	67	69	70	72	74	76	78	79	81	83	85	87	88	90	92	94	96	97	99	101	103	105	106	108	110	112	114	115	117	25
67	69	71	73	75	77	79	81	82	84	86	88	90	92	94	96	97	99	101	103	105	107	109	111	112	114	116	118	120	122	26
70	72	74	76	78	80	82	84	86	88	90	91	93	95	97	99	101	103	105	107	109	111	113	115	117	119	121	123	125	126	27
73	75	77	79	81	83	85	87	89	91	93	95	97	99	101	103	105	107	109	111	113	115	117	119	121	123	125	127	129	131	28
75	77	79	82	84	86	88	90	92	94	96	98	100	102	105	107	109	111	113	115	117	119	121	123	125	127	130	132	134	136	29
78	80	82	84	87	89	91	93	95	97	99	102	104	106	108	110	112	115	117	119	121	123	125	128	130	132	134	136	138	141	30
80	83	85	87	89	92	94	96	98	101	103	105	107	109	112	114	116	118	121	123	125	127	130	132	134	136	138	141	143	145	31
83	85	88	90	92	95	97	99	101	104	106	108	111	113	115	118	120	122	125	127	129	131	134	136	138	141	143	145	148	150	32
86	88	90	93	95	98	100	102	105	107	109	112	114	117	119	121	124	126	128	131	133	136	138	140	143	145	147	150	152	155	33
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91	93	96	98	101	103	106	108	111	114	116	119	121	124	126	129	131	134	136	139	141	144	146	149	151	154	156	159	161	164	35
93	96	99	101	104	106	109	111	114	117	119	122	124	127	130	132	135	137	140	143	145	148	150	153	156	158	161	163	166	168	36
96	99	101	104	107	109	112	115	117	120	123	125	128	131	133	136	139	141	144	147	149	152	155	157	160	163	165	168	170	173	37
98	101	104	107	109	112	115	118	120	123	126	129	131	134	137	140	142	145	148	150	153	156	159	161	164	167	170	172	175	178	38
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104	107	109	112	115	118	121	124	127	130	132	135	138	141	144	147	150	153	156	158	161	164	167	170	173	176	179	181	184	187	40
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111	115	118	121	124	127	130	133	136	139	142	146	149	152	155	158	161	164	167	170	173	176	180	183	186	189	192	195	198	201	43
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132	136	140	143	147	151	154	158	162	165	169	173	176	180	184	187	191	195	198	202	206	209	213	217	220	224	228	231	235	239	51
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163	168	172	177	181	186	191	195	200	204	209	213	218	222	227	231	236	240	245	249	254	259	263	268	272	277	281	286	290	295	63
166	170	175	180	184	189	194	198	203	207	212	217	221	226	230	235	240	244	249	253	258	263	267	272	276	281	286	290	295	300	64
168	173	178	183	187	192	197	201	206	211	215	220	225	229	234	239	243	248	253	257	262	267	271	276	281	285	290	295	300	304	65
171	176	181	185	190	195	200	204	209	214	219	223	228	233	238	242	247	252	257	261	266	271	276	280	285	290	295	299	304	309	66
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181	186	192	197	202	207	212	217	222	227	232	237	242	247	252	257	262	267	272	277	282	287	292	297	302	307	312	318	323	328	70
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189	194	200	205	210	215	221	226	231	237	242	247	252	258	263	268	273	279	284	289	294	300	305	310	315	321	326	331	336	342	73
192	197	202	208	213	218	224	229	234	240	245	250	256	261	266	272	277	282	288	293	298	304	309	314	320	325	330	336	341	346	74
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202	208	213	219	225	230	236	241	247	253	258	264	270	275	281	286	292	298	303	309	314	320	326	331	337	343	348	354	359	365	78
205	210	216	222	228	233	239	245	250	256	262	267	273	279	284	290	296	301	307	313	319	324	330	336	341	347	353	358	364	370	79
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210	216	222	227	233	239	245	251	257	262	268	274	280	286	292	297	303	309	315	321	327	332	338	344	350	356	362	367	373	379	81
213	218	224	230	236	242	248	254	260	266	272	277	283	289	295	301	307	313	319	325	331	337	342	348	354	360	366	372	378	384	82
215	221	227	233	239	245	251	257	263	269	275	281	287	293	299	305	311	317	323	329	335	341	347	353	359	365	371	376	382	388	83
218	224	230	236	242	248	254	260	266	272	278	284	290	296	302	308	314	321	327	333	339	345	351	357	363	369	375	381	387	393	84
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228	234	241	247	253	260	266	272	279	285	291	298	304	310	317	323	329	336	342	348	355	361	367	374	380	386	393	399	406	412	88
231	237	244	250	256	263	269	276	282	288	295	301	308	314	320	327	333	340	346	352	359	365	372	378	384	391	397	404	410	417	89
233	240	246	253	259	266	272	279	285	292	298	305	311	318	324	330	337	343	350	356	363	369	376	382	389	395	402	408	415	421	90
236	242	249	256	262	269	275	282	288	295	301	308	314	321	328	334	341	347	354	360	367	373	380	387	393	400	406	413	419	426	91
238	245	252	258	265	272	278	285	291	298	305	311	318	325	331	338	344	351	358	364	371	378	384	391	397	404	411	417	424	431	92
241	248	254	261	268	275	281	288	295	301	308	315	321	328	335	341	348	355	362	368	375	382	388	395	402	408	415	422	429	435	93
244	250	257	264	271	277	284	291	298	305	311	318	325	332	338	345	352	359	365	372	379	386	393	399	406	413	420	426	433	440	94
246	253	260	267	274	280	287	294	301	308	315	321	328	335	342	349	356	363	369	376	383	390	397	404	410	417	424	431	438	445	95
249	256	263	270	276	283	290	297	304	311	318	325	332	339	346	353	359	366	373	380	387	394	401	408	415	422	429	435	442	449	96
251	259	265	272	279	286	293	300	307	314	321	328	335	342	349	356	363	370	377	384	391	398	405	412	419	426	433	440	447	454	97
254	261	268	275	282	289	296	303	310	318	325	332	339	346	353	360	367	374	381	388	395	402	409	416	423	430	437	445	452	459	98
257	264	271	278	285	292	299	307	314	321	328	335	342	349	356	364	371	378	385	392	399	406	413	421	428	435	442	449	456	463	99
259	266	274	281	288	295	302	310	317	324	331	338	346	353	360	367	374	382	389	396	403	410	418	425	432	439	446	454	461	468	100

Mills Win Merchandising Honors

Coveted advertising and packaging awards go to textile firms

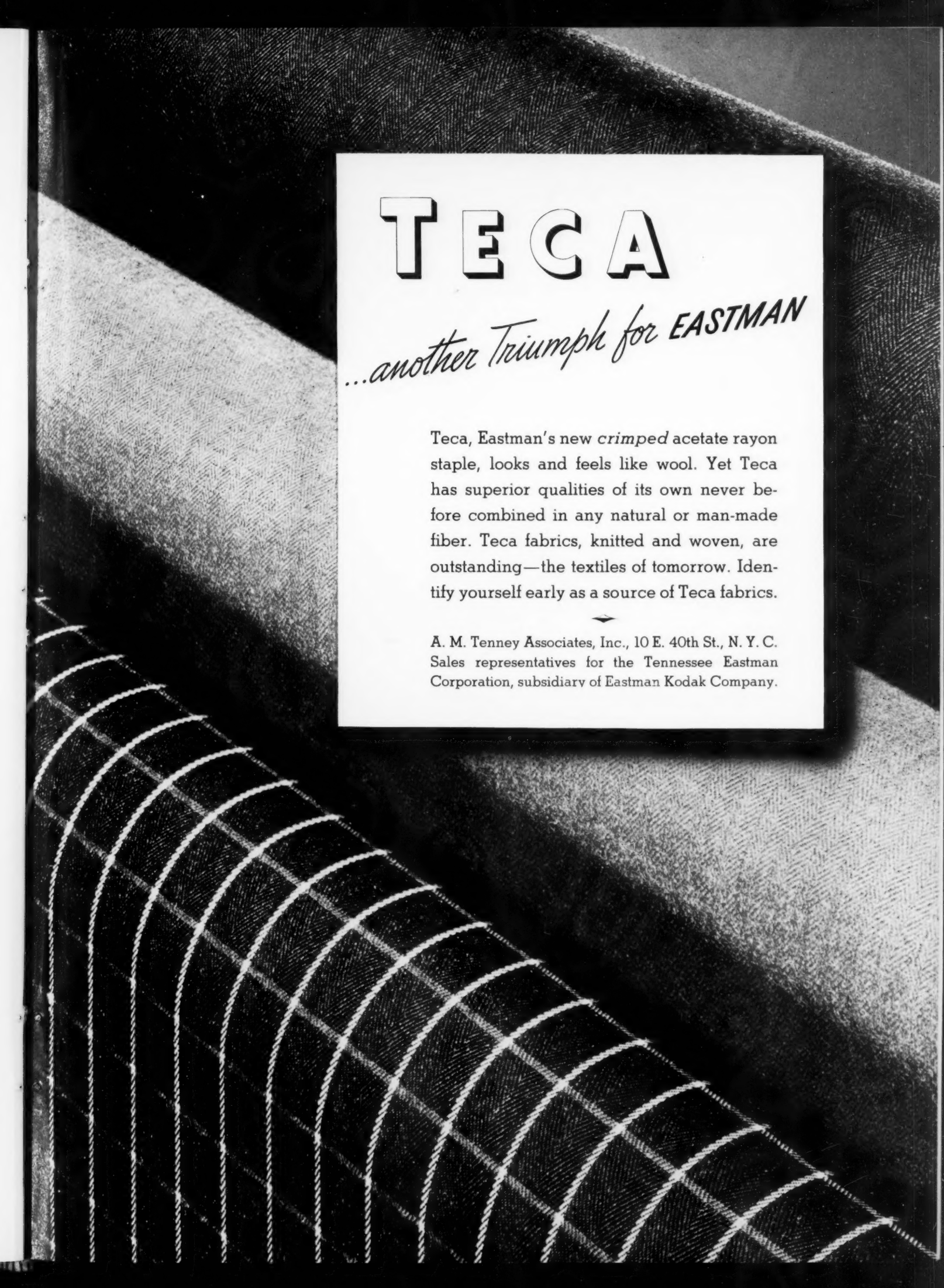
THE ORIGINALITY and effectiveness of current textile merchandising in its two major phases—advertising and packaging—was recognized with public honors during recent weeks. The Avondale Mills of Alabama won one of the Annual Advertising Awards of 1937 for its trade advertising campaign dealing with the human side of industry, and five textile manufacturing companies carried off prizes in the 1937 All-American Packaging Competition. The mills which had successful entries in the packaging contest were: Cannon Mills, Kannapolis, N. C.; Julius Kayser & Co., New York; St. Marys Woolen Mfg. Co., St. Marys, O.; The Esmond Mills, Esmond, R. I.; and National Hosiery Mills, Ltd., Hamilton, Ont.

The significance of these advertising and packaging awards is that they reflect, not so much isolated cases of exceptional merit, but rather the progress made by all the textile brand name mills toward more efficient merchandising. The packaging competition is an annual event, sponsored by *Modern Packaging Magazine*.

A hosiery package, designed for Cannon Mills, Kannapolis, N. C., won a gold award. A photograph of this transparent material package was shown in February issue of TEXTILE WORLD page 51, prior to winning the award. The pack was manufactured by Shellmar Products Co., Chicago.

The Annual Advertising Awards, one of which went to Avondale Mills are sponsored by *Advertising & Selling Magazine*. The award to Avondale was for "advertising as a social force." Announcement of the successful contestants in the advertising competition was made Feb. 23 at a dinner in New York. One award-winner of textile interest was The Torrington Co., Torrington, Conn., manufacturers of an extended range of industrial equipment including knitting needles for the textile trade. The Torrington Co. received honorable mention in the classification "advertisements in industrial publications," for its campaign introducing a new bearing.

(A) Rigid transparent material is utilized to good display advantage in this hosiery container made for Julius Kayser & Co., New York, which won a gold award. Box by Jos. H. Meyer Bros., Brooklyn, N. Y., using a du Pont cellulose acetate plastic. **(B)** Domestics take on interest and novelty in this Dowry Chest package, designed for Cannon Mills, Kannapolis, N. C., which won a silver award. Box by Old Dominion Box Co., Charlotte, Va. The box contains two sheets, two pillow slips, six bath towels, extra large, large and guest sizes, and two wash cloths. **(C)** The steadily widening market for rigid transparent materials is illustrated in this box used by St. Marys Woolen Mfg. Co., St. Marys, O., for their 100% virgin wool blankets, which was a silver award winner. Box by Celluloid Corp., N. Y. City. **(D)** Increased sales are reported by Esmond Mills, Esmond, R. I., for their "Pelage" blankets since adoption of the carton shown above, which won a gold award. "Pelage" is the name of the patented process under which the container is made. Box by National Folding Box Co., New Haven, Conn.



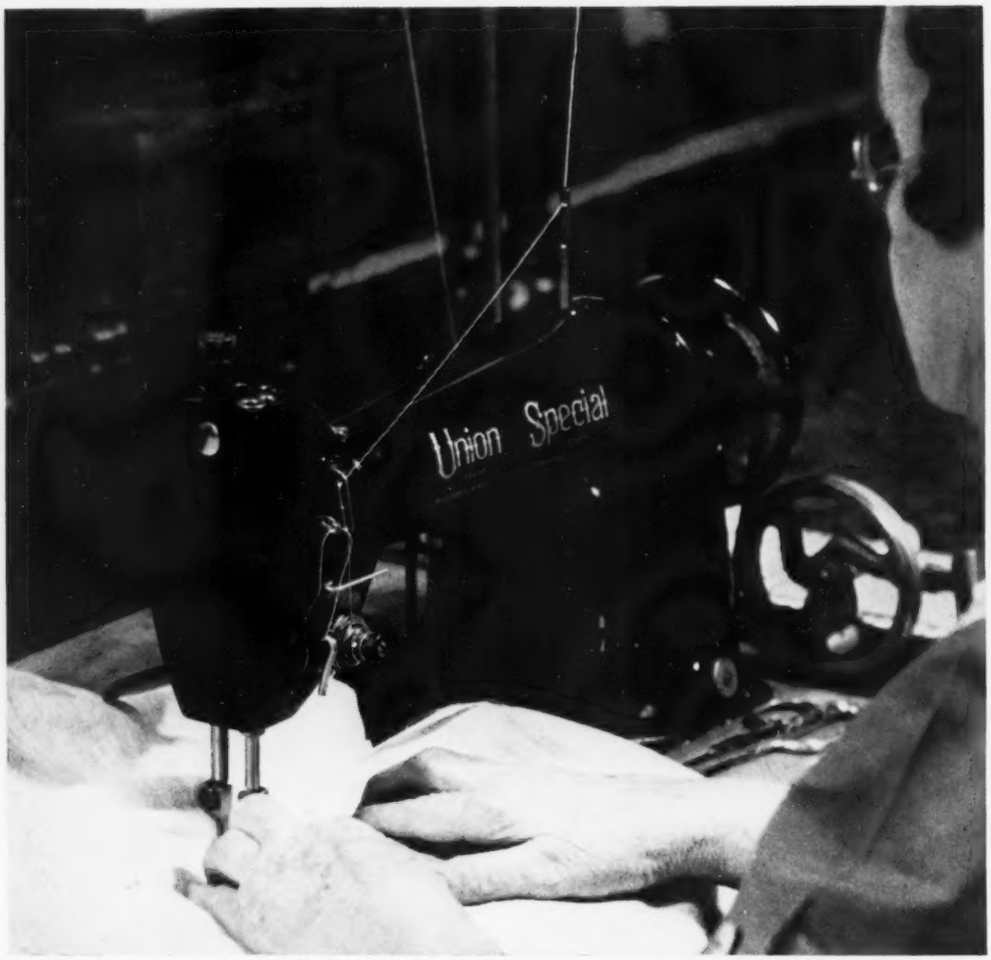
TECA

...another Triumph for EASTMAN

Teca, Eastman's new *crimped* acetate rayon staple, looks and feels like wool. Yet Teca has superior qualities of its own never before combined in any natural or man-made fiber. Teca fabrics, knitted and woven, are outstanding—the textiles of tomorrow. Identify yourself early as a source of Teca fabrics.

A. M. Tenney Associates, Inc., 10 E. 40th St., N. Y. C.
Sales representatives for the Tennessee Eastman Corporation, subsidiary of Eastman Kodak Company.

SAVED $42.00 IN 80 DAYS MAKING BELTS...$109.45 PER YEAR ON HEMMING...$50.50 IN 180 DAYS ON PLAIN SEAMING...



At Max Stone, Inc., the Union Special LOCKSTITCH demonstrated its ability to increase production on belts 14.7%. This is equivalent to a saving of $42.00 in eighty days.

In another plant, the LOCKSTITCH stepped up output 19.8% on a long hemming operation. The net annual saving figures $109.45.

In a well known garment factory the Union Special LOCKSTITCH is used for plain seaming. Despite the fact that short runs with much time out for handling are common, records indicate savings of $50.50 per machine in a season of 180 working days.

FREE: *Ask for a copy of this 8-page illustrated bulletin describing the outstanding mechanical features of the Union Special LOCKSTITCH machine.*

-and it costs less to own!

ALTHOUGH priced lower than you may believe, the new Union Special LOCKSTITCH machine is by no means the cheapest machine on the market. Yet time after time, it has proved to be the LEAST EXPENSIVE machine for a manufacturer to own. In other words, users find that it costs less to keep it going... and that more work can be finished in a shorter length of time.

The LOCKSTITCH is designed to handle a wide variety of single needle seaming, hemming and piecing work. All common attachments for pinking, pleating, folding, guiding, etc., are readily applied and the Union Special factory is always glad to work out additional special attachments. *Write for complete information.* UNION SPECIAL MACHINE CO., 432 North Franklin Street, Chicago, Illinois.

THE Lockstitch
UNION SPECIAL

Perky Prints

STAY BRIGHTER LONGER

when the fabric is finished with "AVITEX"

ONCE AGAIN you're bringing out a vivid variety of gay summer fabrics. Greeting the season with colors and patterns brighter and sharper than ever before.

Will these fabrics still be mill-fresh...the whites white, the colors bright...when it's time for Mrs. America to buy? Yes, if you've used "Avitex" finishing agents.

You can always depend on "Avitex" to prevent air oxidation and dealer complaints. Yellowing or unpleasant odors don't develop even after long periods of storage.

"Avitex" gives you finer finishing for cotton, linen or rayon...without increasing your present finishing costs. Our nearest office will gladly show you how. Write.

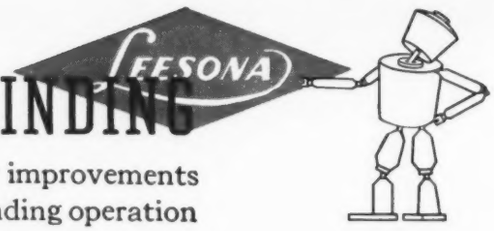
DU PONT
REG. U. S. PAT. OFF.

AVITEX
REG. U. S. PAT. OFF.

TEXTILE FINISHING AGENTS

E. I. DU PONT DE NEMOURS & CO., INC.
Fine Chemicals Division, Wilmington, Delaware

SALES OFFICES:
Boston, Mass., Charlotte, N. C., Chicago, Ill., New York, N. Y., Philadelphia, Pa., Providence, R. I. and San Francisco, Calif. Represented in Canada by Canadian Industries Limited, Box 1260, Montreal, Quebec, and 372 Bay Street, Toronto, Ontario.



GETTING THE MOST FROM WINDING

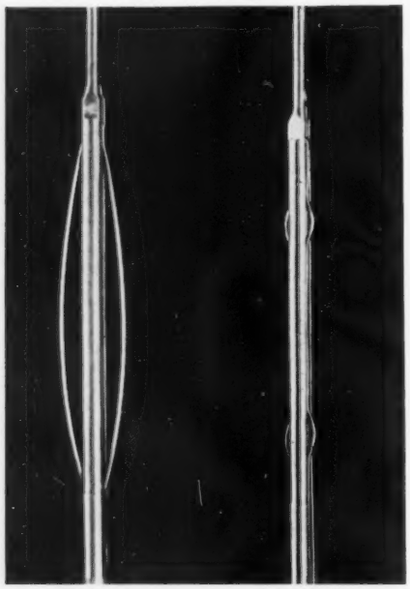
Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

IMPROVED COP HOLDER SPRING

"Best by Test"

(No. 90 Leesona Winder)

For many years efforts have been made to improve the material and design of cop holder springs. The time required for testing under mill conditions would be altogether too long, so we developed the "torture machine" shown at right.

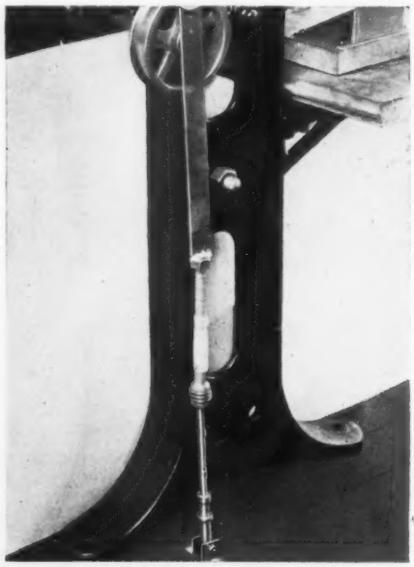


THE OLD THE NEW

This machine has been testing for months several types of specially-tempered music wire, some imported from abroad. We have finally found one wire whose performance on the torture machine assures us that it has a much longer life than any wire we have ever tested.

We have also gone one step further and have discovered — after many experiments — a shape of spring much more satisfactory than the long open design used in the past. Again, the torture machine has proved this shape "best by test."

These conclusions have been strengthened by results in actual mill operation, and we have adopted this new wire and design as standard equipment—to be sent on replacement orders and on new machines.



Torture machine automatically slides the bobbin on and off the spindle to test life of one spring with another.

YARN TAKEUP SPEED (No. 50 Winder)

How to figure it. The average yarn takeup speed on the No. 50 Winder can be estimated by using this formula:

$$\frac{\text{Ave. Diam.} \times 3.14 \times \text{Spindle R.P.M.}}{36 \text{ Inches}} = \text{Y. P. M.}$$

The average diameter of a parallel tube is determined by adding the diameter at the start of winding to the diameter of the finished package, and dividing by 2. The average diameter of a cone is figured by adding the starting diameter on the nose end of the traverse to the base diameter of the full cone, and dividing by 2.

For example, when winding a 4" package on a $1\frac{1}{4}$" tube at 1000 r.p.m., the average winding speed will be:

(Ave. Diam.) (R.P.M.)

$$\frac{2.625'' \times 3.14 \times 1000}{36''} = 229 \text{ Yards per Minute}$$

The above method is simplest for practical use, but it is not absolutely accurate, because an allowance should be made for the length of traverse and number of winds which will give a higher actual yarn takeup speed.

The following formula for determining corrected yarn takeup speed will be helpful to those mills that are operating many precision winding spindles.

(T stands for Traverse, W for Winds)

$$\frac{\text{R. P. M.}}{36'' \times \text{W}} \times \sqrt{(\text{T})^2 + (\text{W} \times \text{Ave. Diam.} \times 3.14)^2}$$

Example: winding a package to 4 inches in diameter on a tube $1\frac{1}{4}$" in diameter, 1000 r.p.m., 6" traverse, 2.5 winds.

$$\frac{1000}{36'' \times 2.5} \times \sqrt{(6'')^2 + (2.5 \times 2.625'' \times 3.14)^2}$$

$$11.11 \times \sqrt{36 + 425} = 11.11 \times 21.47 =$$

Corrected Yarn Takeup Speed 238.6 Y.P.M.

To change any of the figures in the table below to other spindle speeds:

$$\frac{\text{Y.P.M.} \times \text{R.P.M.}}{1000 \text{ R.P.M.}} = \text{Y.P.M. for other speed}$$

$$\frac{238.6 \times 1200}{1000} = 286 \text{ Yards per Minute (for 1200 R.P.M.)}$$

AVERAGE YARN TAKEUP SPEEDS

Spindle Speed: 1000 R.P.M. Corrected for 6" Traverse and $2\frac{1}{2}$ Winds

TYPE OF WINDING	$\frac{5}{8}$" Tubing	5°57′ Coning 9°15′ Nutaper Coning	1" Tubing	3°30′ Coning	Franklin Spring
Diameter of Full Tube or Base Diameter of Full Cone	Outside Starting Diameter $\frac{27}{32}$"	Starting Diameter at Nose End of Traverse $\frac{27}{32}$"	Outside Starting Diameter $1\frac{1}{4}$"	Starting Diameter at Nose End of Traverse $1\frac{1}{4}$"	Outside Diameter of Spring and Stocking $1\frac{3}{4}$"
$6\frac{1}{4}$	317		334		359
6	306		323		348
$5\frac{3}{4}$	295		313		336
$5\frac{1}{2}$	285		302		325
$5\frac{1}{4}$	274		292		314
5	264		282		302
$4\frac{3}{4}$	253		271		291
$4\frac{1}{2}$	242		261		281
$4\frac{1}{4}$	232		250		270
4	221		239		260
$3\frac{3}{4}$	211		229		249
$3\frac{1}{2}$	200		219		239
$3\frac{1}{4}$	190		209		228
3	180		198		218

UNIVERSAL WINDING COMPANY

PROVIDENCE BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

8528

THE EDITOR SAYS

Where Is F.T.C. Going?

ALTHOUGH the Arthur Besse-Federal Trade Commission controversy is now closed, it had a significance which remains. It opened up the whole question of F. T. C. procedure and where it is going.

During the last year, observers of the commission's attitude in respect to these trade practice conferences have noticed a marked change in that attitude—a swing from a cooperative to a dictatorial position. A glaring example was the quick-change stunt performed by the F. T. C. in connection with the rayon rules. Furthermore, the conduct of many of the conferences has been tending toward a take-it-or-leave-it basis: a disposition to shut off free discussion.

There are three basic considerations in this question of trade practice conference procedure with particular reference to fiber identification:

1. The attitude of the textile industry has changed definitely during recent years, and today the majority of manufacturers and their associations have discarded their erstwhile defensive attitude and are sincerely anxious to develop rules which will protect both the consumer and the ethical producer.

2. That willingness, however, cannot be stretched to the point of accepting any wild idea which any group wants to advance. The consumer would not be helped—in fact would be hurt—if rules were adopted which not only do not give the proper information but are impracticable of adherence, so far as the manufacturer is concerned.

3. Recognizing these first two facts, the Federal Trade Commission should do everything in its power to make sure that rules finally adopted are feasible and have the support of the industry concerned.

The commission has enjoyed the respect of most business-men. It can lose that respect if it permits the change in its attitude, noted above, to progress.

Now, we suppose the commission might explain all of this away by saying that its main function is to protect the public interest and that industry will have to take any set of rules drafted toward that end, and like it. Abstractly, that position might be tenable; practically, it would be the surest way to vitiate the whole trade practice conference procedure.

It would seem in order for the F. T. C. to examine its personnel and its methods, and to determine what of each is responsible for this impression of a dictatorial bureaucracy which it is creating for itself in the minds of many industrialists.

The U.-K. Trade Pact

IF THERE is one thing the textile industry doesn't need right now, it is uncertainty resulting from the pending trade agreement with the United Kingdom. The interests of a million-odd employees, as well as those of thousands of manufacturers (mostly in the Administration's pet category of "small" businessmen) cry out loud for a little stability and assurance, rather than more variables.

However, the cold fact remains that the industry *is* faced with this uncertainty and has to do something about it. The avalanche of textile briefs which deluged the Committee for Reciprocity Information showed that the industry did not shirk its job.

Out of the mass of well-assembled data and logical arguments presented in those briefs, this sobering thought presents itself as the major conclusion: Lowering of tariff rates on textile products at this time would further imperil the livelihood of textile workers, so many of whom already are either unemployed or on critically short time.

There is one other major point—applicable specifically to the wool industry. The absurdity of first entering into an agreement with the United Kingdom, in which wool manufactures would be involved, and later on negotiating a treaty with Australia covering raw wool, is apparent. So, too, is its danger. Market stagnation would result during months of anticipation of a cut in the raw wool duty. The only sane way is to negotiate the treaty with Australia at the same time as that with the U.-K.

No one questions—in fact all admire—Secretary Hull's sincerity in the development of these agreements. However, the realistic truth is that grand sounding statements about international amity are of little help to employees whose jobs are threatened. An Administration which boasts constantly of its feeling for the wage-earning groups has one more chance to do something concrete to aid them—or at least to refrain from hurting them.

RAYON-SILK SECTION OF LOOMFIXERS' MANUAL STARTS

THE THIRD SECTION of the Loomfixers' Manual—that covering rayon and silk weaving—starts in this issue, on page 73. The third chapter of the Cotton Section continues on page 75. Another instalment of the Wool Section which is running simultaneously, will appear in April. The reception given this Manual by operating men reveals clearly the tremendous need that existed for it.

A Smart Move

THE Cotton Consumption Council started at a meeting in Atlanta this month represents a progressive move. It ties together, in a concerted drive to stimulate the demand for cotton products, several groups whose interests are mutual in this respect. It is the sort of activity we had in mind at the first of the year when we named *promotion* as one of the textile industry's two great needs for 1938. Congratulations to the Cotton-Textile Institute for taking the initiative!

Merchandising Straws

CONSTANTLY, things are being done which lead one to hope for better and better textile merchandising. Recently, for example, we have had such isolated steps as: The highly effective forum conducted by the American Viscose Corp. The winning of honorable mention by the Avondale Mills for "advertising as a social force." The sales training manual for retail stores prepared by Louisville Textiles, Inc. The excellent booklet "Rayons at Retail" prepared by the Rayon Yarn Producers Group. The educational efforts of the Industrial Rayon Corp. The packaging awards won by Cannon Mills, Julius Kayser & Co., St. Mary's Woolen Mfg. Co., Esmond Mills, and National Hosiery Mills.

These—and other events—are straws which, we hope, show the way the textile merchandising wind is blowing.

NEWS OF THE MONTH

Barrage of Briefs Against U.-K. Pact

That the textile industry is of one mind on at least one point—opposition to the proposed reciprocal trade agreement with the United Kingdom—is shown by the barrage of briefs which the several branches of the industry have laid down.

The Committee on Reciprocity Information has received briefs opposing the pact from the Cotton-Textile Institute, American Cotton Manufacturers Association, National Association of Cotton Manufacturers, Association of Cotton Textile Merchants of New York, Southern Combed Yarn Spinners Association, National Association of Wool Manufacturers, National Association of Hosiery Manufacturers, Underwear Institute, National Knitted Outerwear Association, and the Rhode Island Textile Association. In addition, Julius Forstmann, president, Forstmann Woolen Co., Passaic, N. J., submitted a brief as an individual.

Hearings before the Committee on Reciprocity Information start in Washington Monday, March 14.

Washington story on this development appears on page 46 of this issue.

Put Off Wage Hearing

Cotton-textile authorities in Washington said that postponement of hearings before the public contracts board of the Labor Department, on wage schedules covering the cotton-textile industry, including dyeing, finishing and bleaching as well as spinning and weaving, was a fair and intelligent move. The public contracts board sets minimum wages to be paid by manufacturers contracting their goods to the Government. This is done in accordance with the Walsh-Healey Act. Since the April, 1937 survey, the industry has run into depression, temporary, it believes, but none the less serious. Therefore it asked time to make a re-check.

Suggests N. L. R. A. Changes

Secretary Roper's Business Advisory Council has recommended to the President that the National Labor Relations Act be amended to provide insurance that:

"(a) Neither the act nor its administration will favor any particular form of bona fide labor organization.

"(b) Employees shall be free in self-organization and collective bargaining from interference, restraint or coercion from any source.

"(c) Any party to a labor dispute shall be able to invoke the services of the board.

"(d) The function of fact-finding, prosecution and judicial decision shall be separated and not combined in a single agency.

"(e) The rights and obligations of employers and employees and their representatives or organizations shall be more clearly defined by law and made less subject to definition at the discretion of the board."

N. A. W. M. Holds Annual Meeting

Warning against increasing foreign competition was the feature of the annual meeting of the National Association of Wool Manufacturers which was held in executive session at the Hotel Commodore, New York, Feb. 16. The meeting was attended by about 100 members.

Arthur Besse was re-elected president. Other officers elected were: Vice-presidents, Franklin W. Hobbs, Thurmond Chatham, Lewis A. Hird, Millard D. Brown; secretary-treasurer, Walter Humphreys; directors-at-large, E. J. Abbott, J. H. McGowan, G. Pierce Metcalf, F. Everett Nutter, Moses Pendleton, James K. Selden, Winfield Schuster, Sylvan Stroock, J. B. Tait and C. C. Wood.

Group directors elected were: Worsted men's wear, Harold J. Walter; carded women's wear, Fulton Rindge; cotton warps, David Taft; knit fabrics, Copeland Draper; carded spinners, Leon Sylvestre; piece goods selling division, W. V. E. Terhune; reworked wool, L. B. Lockwood.

Use of individual names in men's fancy wool socks has been found by Allen-A Co., Kenosha, Wis., to stimulate the sales interest of both the retailer and the ultimate consumer. Tried first experimentally in 1937, the idea proved so effective that it has been expanded in the 1938 line and the company is backing it up by specially prepared advertising. Use of these names, the company reported, excites interest because it gives a little added atmosphere and personalized touch to a line of half-hose. "Scottish Chief," "Kings Guard," "Bagpipe," the names of hose shown above, are representative of the general line, which includes also "Kiltie," "Tyrolean," "8th Lancers," etc.

Low-Quality Crop Presents Problems

Occasionally there is a fluke crop, such as 1937: the largest baleage ever harvested and the poorest spinning qualities, as found by practical observation checking with breaking-strength results from all types of cotton mills. This low breaking-strength is not confined to one type of cotton, grown in one locality, but seems to be a universal trouble. Although the Carolina quality is poor, the Delta quality is worse, and mills are being forced to spin longer staple than heretofore required for the same purpose in order to get the necessary breaking strength. In particular difficulty over this factor are the tire fabric mills for they have a higher breaking-strength requirement than any other type of mill.

"But what do the mills do, spinning this kind of cotton?" one asks a practical mill man.

"They do the best they can," is the answer. "They experiment around, make machinery adjustments, and do a lot of praying that an ultimately satisfactory result will be obtained."

There are other factors in this 1937 crop: too much short staple, scarcity of good grade. The Dec. 1 grade and staple report showed 16,165,600 bales ginned from the 1937 crop to that date and of this amount 1,554,200 bales were untenderable because of short staple. There was a shortage of better grade cotton this year and out of the crop there was no old-style strict middling. Most of the available supply of good grades has been taken and we find today a great scarcity of cotton, middling and above.

Cotton Consumption Council Formed

Representatives of growers, manufacturers, merchants, State Commissioners of Agriculture, and the Cotton-Textile Institute met in Atlanta March 3 with more than 60 in attendance to form the Cotton Consumption Council. The object of the council is to increase the interest in cotton textiles and stimulate greater demand. The States of North and South Carolina, Georgia, Alabama, Louisiana and Texas were officially represented. Immediate steps will be taken to launch an active campaign which will reach its peak during "National Cotton Week" May 30—June 4.

An executive committee was formed with H. D. Wilson of Louisiana, chairman, and Charles K. Everett of New York, secretary, which will serve as a steering committee. Others serving on the committee are Dr. C. T. Murchison, R. T. Stevens, J. P. Nichols and Fred Griffith of New York; M. T. Williamson of Louisiana; John A. Logan and C. P. Denman of Washington; C. P. Henry of Tennessee, and Columbus Roberts of Georgia. It is interesting to know that more than 50,000 retail outlets for cotton goods are represented on this council.

Durham Attacks Tax Proposal

A vigorous protest against the provision in the proposed revenue act developed in the House of Representatives, relating to closely held corporations, has been made to Rep. Robert L. Doughton, chairman of the Ways and Means Committee, by Taylor R. Durham, executive secretary of the Southern Hosiery Manufacturers Assn.

Southern Basketball

The 18th Southern Textile Basketball Tournament, held in Textile Hall, Greenville, S. C., March 2-5, drew 700 players comprising 68 teams from four States. Class A championship for boys was retained by Southern Bleachery, Taylors, S. C.; class A for girls was won by Chatham Mfg. Co., Winston-Salem, N. C.

World's Fair Progress

Construction of the Hall of Textiles at the New York World's Fair 1939 will be completed March 28, after which contracts will be let for the equipment and interior completion of the building. Space has not yet been allotted to individual companies. Actual equipment in operation will be a feature. The building cost $325,000 exclusive of equipment.

UNDERWEAR SHOWROOM IS MINIATURE THEATER—Among the many distinctive features of the new modernistic offices of Munsingwear Corp., which were formally opened last month at 200 Madison ave., New York, is a miniature theater to be used for the staging of underwear fashion shows. Indirect lighting, conservative decoration in pastel shades, and seating capacity for 75 persons, are among the notable points of the theater. The remainder of the offices, likewise decorated in modernistic style, include a spacious reception room, private executive offices, and display rooms.

Rayon Silk Dyers To Rehabilitate

Recent moves made by rayon and silk dyers to rehabilitate their industry include a series of conferences of employers and union officials with Mayor Bernard L. Stafford, Paterson, N. J.; formation of a joint committee representing dyers and their employees, organization of a new trade association; and agreement on a five-point recovery program.

The new trade asociation is called tentatively the Association of Textile Dyers, Inc. Aims of this group, which is said to have the support of a majority of the industry, include central billing and collecting; a central claim-adjustment bureau; open-price posting; weekly exchange of statistical information on yardage of various fabrics finished; and an industry label confined to members of the proposed association and to those outside the association who subscribe to a code of trade practices.

Correction

In the report of the testimony of textile representatives before the Senate Committee on Unemployment and Relief, in last month's issue, it was stated that Robert E. Henry, president of the American Cotton Manufacturers Association, said that the southern cotton textile industry was then operating (Jan. 10) at 35% of capacity. This was incorrect; Mr. Henry's actual statement was to the effect that the industry was then operating at approximately 65% of the average operations which prevailed during the first half of 1937.

Textile Law for S. C.

A law prohibiting any textile operative from working more than 40 hrs. per week was passed last month by the General Assembly of South Carolina. It will become inoperative May 1, 1939, unless similar laws have been passed in the meanwhile by the United States Congress. Just prior to passage of this law, a bill in the S. C. House designed to require all textile plants to install air-conditioning equipment was defeated 53 to 40.

Beal Back in Jail

Prison gates closed Feb. 15 on Fred Irwin Beal, former Communist labor organizer who fled to Russia nine years ago while under a 17-to-20-year sentence in North Carolina for conspiracy to murder Police Chief O. F. Aderholt, of Gastonia, N. C. The Gastonia police chief was killed in textile riots that grew out of a strike at cotton mills in 1929.

Finishers Elect

At a meeting of the National Association of Finishers of Textile Fabrics, held last month, the following officers were elected: William J. Matthews, chairman of the executive committee; John W. Manley, Sales Finishing Plants, first vice-president;

Porospun, a new spring fabric, containing 100% acetate rayon yarn made by Tennessee Eastman Co., New York, and woven by A. D. Julliard & Co., New York, is attracting trade attention because of its suitability for all-year round wear. This porous basketweave material, looks somewhat like a fine homespun. Above illustration shows Porospun combining three tones—beige, brown and red—in a flattering daytime dress retailing at about $10.

Howard R. Gessner, second vice-president; Alice C. Moore, treasurer and secretary.

Mothproofing Process

Development of a new mothproofing process has been anounced recently by Neva-Moth Corp. of America, 500 Fifth Ave., New York. The president of this company, S. Howard Lefkowitz, states that the process will be promoted vigorously. Licensees will be supplied with tags, to be attached to materials treated by the Neva-Moth process, carrying a 5-year guarantee by Neva-Moth Corp. against moth damage.

A.A.T.C.C. Notes

At the February meeting of the New York Section American Association of Textile Chemists & Colorists, held Feb. 25, at Rochelle Park, N. J., Rudolph Lindenmaier, Sandoz Chemical Works, spoke on "Some Aspects of Water-Repellency." A sound motion picture, "Beyond the Rainbow," was shown by R. R. Sleeper, Calco Chemical Co.

Technical features of the winter meeting of the Piedmont Section, held Feb. 19 in Greenville, S. C., included a discussion of printing thickeners by Dr. Sivert N. Glarum, former research associate for A.A.T.C.C., and now with Rohm & Haas Cos.; dyeing and printing problems, by Ben Verity, technical adviser, Carbic Color & Chemical Co.; and merchandising and style requirements by E. M. Edgerton, director of style bureau and color research, Pacific Mills. Dr. R. E. Rupp, Pacific Mills, Lyman, S. C., presided at the meeting. Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, spoke urging closer cooperation between different groups of the industry better to regulate overproduction and overbuying. W. M. McLaurine, secretary of American Cotton Manufacturers Association, was a guest.

Mild Improvement in Goods and Yarn

A resumption of the mild improvement apparent in the cotton goods and yarn markets during part of December took place in February. Prices strengthened at current levels, and higher prices are expected by April. Buying in print cloths absorbed the month's production, but there are estimated to be at least 150,000,000 yd. in stock. Nearly 10,000,000 yd. single and ply combed peeler yarns have been sold at this writing since Jan. 1. Unless there is a radical change in conditions during the next few days, the first quarter will be very unsatisfactory for the mills due to increased costs caused by curtailment and higher cotton prices. The southern mills, as a group, have not reduced wages. Cone advanced outing flannels ¼¢ on Mar. 4.

Wool Goods Look Toward Fall, 1938

A few buyers of wool goods have been in the market lately picking up fill-in lots for spring and feeling out the situation for fall, 1938. At the close of February no lines were openly priced for the new season although sample preparation was in progress. A start is likely, however, before the end of March.

A few houses, chiefly those dealing in women's wear, report current improvement in business for spring, but little was being ordered for delivery beyond late March except on such lines as tropical worsteds and gabardines. There is real need for second quarter business.

Philadelphia Alumni Dine

Approximately 200 graduates of Philadelphia Textile School attended the institution's 37th annual Alumni Association banquet, held Feb. 25 at the Ritz-Carlton Hotel, Philadelphia. Bradley C. Algeo, president of the Association, acted as toastmaster and presented the speakers, Hon. Gifford Pinchot, former governor of Pennsylvania, and Dr. Wm. S. Sims, humorist. Mr. Pinchot described the migration of industries from Pennsylvania and stated its principal cause was excessive and unnecesasry taxation.

Purchasing Agents Meet

The midwinter meeting of the Carolinas-Virginia Purchasing Agents Association was held Feb. 12 at Pinehurst, N. C. J. J. Barnhardt, vice-president of Cannon Mills Co., Kannapolis, N. C., is president of the group. Speakers included Hill Hunter, general manager of Proximity Mfg. Co., Greensboro, N. C., and Deloss Walker, associate editor of *Liberty* Magazine.

Wool Blankets Open

All-wool blankets were priced in several quarters for the 1938 season early in February. The American Woolen Co. is offering its 3-lb. blanket with 4-in. rayon binding at $3.65 against $4.22½ named in February a year ago, and $4.45 to which it was advanced by the end of last March, a drop of 18% from high. The 3½-lb. blanket of same grade is at $4.10 against opening at $4.67½ last year.

Cotton Carnival

The annual Memphis (Tenn.) Cotton Carnival will be held May 10 to 14, it was announced recently by C. A. McElravy, chairman.

Turkish Rug Tariff

Congressional Committee on Reciprocity Information has heard from another textile interest recently. The Institute of Carpet Manufacturers of America has filed a brief opposing any reduction of tariff on rugs such as might be involved in the foreign trade agreement with Turkey.

Marks 25th Year

National Association of Waste Material Dealers are holding their annual convention in New York, Mar. 14 to 16. Headquarters equipped with club facilities will be at Hotel Astor where the Silver Anniversary Banquet will be held on Mar. 16. Charter members and former presidents will be special guests.

Outerwear Dinner

The National Knitted Outerwear Association announced early this month that plans were substantially complete for the industry's all day

gathering at the Astor Hotel, New York, March 22; the program, as announced, comprises a directors' meeting, a general convention session, and the industry-wide banquet.

Knitting Show Plans

Plans for knit goods week in Philadelphia, April 25 to 29, are advancing rapidly, and it was reported at the start of March that the management was having difficulty finding spaces for late reservations in the Knitting Arts Show at the Commercial Museum. The annual convention of the National Association of Hosiery Manufacturers, as usual, will be held on the Wednesday of exhibition week, April 27, and the convention of the Underwear Institute will be held on the Thursday.

Hosiery Wage Revised

Revisions in hosiery wages in the Philadelphia and Reading, Pa., districts were ordered by the Wage Rate Tribunal in Washington (for Philadelphia) and Dr. A. H. Williams (as arbitrator for Reading). Claiming that the revision meant a 11 to 22% wage cut, the Philadelphia local of The American Federation of Hosiery Workers ordered a strike Feb. 28, which act was repudiated by the National Union. The chief effect of Dr. Williams' ruling was to give Reading wages closer parity to the Philadelphia levels.

Rayon Sales Code Approved

A code of fair trade practices for the rayon greige goods manufacturing trade was approved by industry representatives at a New York meeting Feb. 24 and was submitted to the Federal Trade Commission, which body is expected to call a hearing on the rules.

Report Analyzes Underwear Selling

Underwear distribution problems are submitted to clinical analysis in a report just completed by the Underwear Institute. The report is published as a new chapter in a revised edition of "Business-Building Facts" the first edition of which apeared last year. This volume, planned and written by Francis E. Simmons, research director of the Institute, has been brought up to date, and gives a comprehensive picture of production and selling in the underwear industry.

The new chapter on distribution stresses the need for further effort in market study which effort, it is indicated, may subsequently be utilized in expanding underwear markets. Following are a few highlight points brought out in the report: Mills spend 10% of their net income for selling effort; of the total warp knit fabrics made, 70% goes to underwear and 30% to gloves; there is a decided trend by mills to sell direct to stores, which is attributed in part to stores' insistence that buyers buy direct and not through jobbers; demand from mail order houses is mostly for staple lines of knit cotton and or wool goods.

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Silk Rises 8c

Due to shortage of available stocks here, plus a slightly improved market position, raw silk prices strengthened appreciably. Price of crack double extra 13–15 white 78% on the Commodity Exchange, New York, was $1.51½ on Jan. 25, rising a month later to $1.59½.

Wool Tops Up

Wool tops lost ground near the close of January and remained weak through early February. Spot tops in New York at mid-month were 79½c, the lowest figure since May, 1935. Prices gained several cents and on Feb. 25, spots were at 85c.

Acetates Active

Demand for rayon yarns increased somewhat in February, but the pick-up was mainly in acetates. Acetates were selling to maximum of production and producers were short of certain numbers; viscose was quiet.

TEXTILE WORLD ANALYST

TEXTILE WORLD'S index of textile mill activity for January—the only month of 1938 for which complete statistics are available at this writing—reflects dramatically and painfully the difference between this year's start and last year's. In January, 1937, the industry was raring to go—and the main problem was how to get more production. This year, short time was the rule in all branches of the industry. As a result the January 1938 index was 40% less than that for the same month last year—and 25% less than that for January of the 8-year average (1924–31) roughly assumed as "normal."

By individual fibers, cotton consumption was about 35% less this January than last, wool about 60% less, silk 30% less, and rayon 50% less.

This year, the trend will be toward better comparative performance as the months go on, whereas last year the reverse was true, and the activity went steadily downward in the last half of the year.

TEXTILE WORLD'S compilation of manufacturing margins in carded cotton fabrics showed a slightly downward trend in the last two weeks of the month due to rising raw material, but the average for the month was the same as that for January. (Table I.) This margin is entirely unprofitable, particularly when taken in conjunction with short time. Carded yarn margins fell rather sharply in the first week of February and then steadied; the monthly average was 0.6¢ below January. (Table II.)

TEXTILE WORLD'S price index numbers (see below) reflected mixed trends. In the cotton series, the raw material and the gray cloths were up, while the yarns and colored cloths were unchanged. All indices in the wool series were down except cloth which was unchanged. Raw silk strengthened slightly, while the full effect of the January reductions in rayon yarn was shown in that index.

The entire industry appears to be in the transition stage, where greater activity and firmness are to be expected in the near future.

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

	Cotton Index Numbers				Wool Index Numbers				Silk Index	Rayon Index
Date	Cotton	Yarns	Gray	Colored	Wool	Tops	Yarns	Cloth	Raw-Silk	
1923-25	100	100	100	100	100	100	100	100	100	100
1930 ave.	50	61	61	72	58	61	72	90	109	46
1931 ave.	32	68	46	59	46	49	59	71	32	32
1932 ave.	24	37	37	60	36	40	52	57	21	28
1933 ave.	39	56	55	50	53	59	62	80	21	26
1934 ave.	61	67	70	62	63	70	75	91	17	25
1935 ave.	60	68	67	69	56	58	70	88	22	24
1936 ave.	45	63	63	68	72	78	76	93	23	25
Jan. 1937	48	73	81	76	90	93	88	108	27	26
Feb. 1937	48	74	78	76	90	92	90	108	27	26
Mar. 1937	53	78	80	78	87	88	90	112	27	26
Apr. 1937	53	80	82	80	84	86	90	112	27	27
May 1937	49	75	76	78	82	84	89	112	24	27
June 1937	47	70	71	78	78	82	88	112	25	27
July 1937	45	65	67	78	78	82	88	112	26	27
Aug. 1937	37	59	62	78	80	82	88	112	25	27
Sept. 1937	35	54	56	73	78	81	87	107	25	27
Oct. 1937	31	51	53	67	73	76	82	100	23	27
Nov. 1937	29	48	50	61	66	68	74	97	22	27
Dec. 1937	30	47	49	60	60	64	70	97	21	27
Jan. 1938	32	47	49	62	57	63	68	97	21	26
Jan. 1936	48	67	63	68	67	73	75	93	26	24
Feb. 1938	33	47	50	62	52	60	67	97	22	23

Key wool prices with usual comparisons follow:

	Mar. 1, 1938	Feb. 1, 1938	Mar. 1, 1937	Mar. 2, 1936
Fine and fine med. territory	$0.62	$0.68	$1.05	$0.88
Ohio ⅜s	.28	.31	.52	.43
Tops fine 64–66s	.88	.93	1.32	1.18
Average ⅜s	.72	.76	1.12	1.05
High ⅜	.68	.71	1.05	.96
Noils, fine	.58	.58	.82	.72
¼	.45	.45	.62	.58
2–40s 60s wstd yarn	1.40	1.42	1.85	1.60
2–32s 56s wstd yarn	1.20	1.20	*	*
8020 serge	2.00	2.00	2.20	1.95

Current statistics on wool consumption and mill activity:

	January (5 weeks)	December (4 weeks)
Wool consumed, clean equiv.		
Apparel wool, lb	12,710,000	10,424,000
Carpet wool, lb	3,670,000	2,856,000
Machinery activity (40-hr. shift)		
Looms (50-in. and wider)	67.0%	64.7%
Carpet looms	35.2%	38.0%
Combs	65.7%	64.6%
Worsted spindles	50.5%	54.7%
Woolen spindles	64.3%	60.0%

Key rayon prices and statistics follow:

Prices	Mar. 1, 1938	Feb. 1, 1938	Mar. 1, 1937	Mar. 2, 1936
Viscose process				
75 denier (18–30 fils.)	$0.77	$0.77	$0.90	$0.90
100 denier (40 fils.)	.71	.71	.79	.79
150 denier (40 fils.)	.54	.54	.60	.57
Acetate process				
150 denier	.54	.54	.60	.60
Cupra. process				
150 denier (112 fils.)	.54	.54	.65	.65
Rayon staple, 1½, 3 and 5½ denier viscose	.25	.25	.28	*

Indices of Deliveries*

	Feb.	Jan.	Dec.
In years 1937–8	493	374	242
In years 1936–7	721	737	713

* Rayon Organon. Covers 100% data for all processes 1923 to date. Note that acetate is now included. Shipments index for all rayon 1923–25 = 100.

Key silk prices and statistics follow:

Prices	Mar. 1, 1938	Feb. 1, 1938	Mar. 1, 1937	Mar. 2, 1936
Crack XX 13/15 wh. 78%	$1.58	$1.49½	$1.82	$1.72½
Tram, 5thd Japan 85%	2.35	2.29	2.83	2.38
Tram Crack XX 78%	2.16	2.16	2.57	2.25
60s-2, spun silk	3.15	3.15	3.05	2.90

Statistics (Bales)	Imports	Approximate deliveries	Stocks at warehouses
February, 1938	25,416	30,260	43,834
January, 1938	29,858	30,715	48,678
December, 1937	26,093	21,982	49,535

Fabric and yarn manufacturing margins follow:

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933	21.4	May, 1936	14.3
October, 1933	19.1	June, 1936	15.3
January, 1934	18.4	July, 1936	16.9
April, 1934	17.6	August, 1936	18.0
July, 1934	15.5	September, 1936	18.4
August, 1934	16.6	October, 1936	21.2
September, 1934	18.6	November, 1936	25.4
October, 1934	17.4	December, 1936	28.1
November, 1934	15.8	January, 1937	28.6
December, 1934	16.2	February, 1937	26.2
January, 1935	16.2	March, 1937	25.6
February, 1935	16.0	May, 1937	23.1
March, 1935	15.9	June, 1937	21.2
April, 1935	16.1	July, 1937	20.1
May, 1935	16.0	August, 1937	19.4
June, 1935	16.5	September, 1937	18.1
July, 1935	15.2	October, 1937	17.3
August, 1935	17.1	November, 1937	16.9
September, 1935	17.9	December, 1937	15.7
October, 1935	17.7	February, 1938	16.2
November, 1935	16.4	Feb. 2	16.6
December, 1935	16.2	Feb. 9	16.2
January, 1936	17.2	Feb. 16	16.2
February, 1936	16.3	Feb. 23	15.9
March, 1936	15.5	Mar. 2	15.9
April, 1936	14.3		

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933	23.5	June, 1936	14.6
October, 1933	20.0	July, 1936	15.0
January, 1934	18.3	August, 1936	16.5
April, 1934	15.9	September, 1936	16.5
July, 1934	14.6	October, 1936	17.2
August, 1934	15.3	November, 1936	18.0
September, 1934	15.6	December, 1936	20.6
October, 1934	14.6	January, 1937	20.8
November, 1934	13.3	February, 1937	21.2
December, 1934	13.5	March, 1937	21.3
January, 1935	13.5	April, 1937	22.6
February, 1935	13.9	May, 1937	21.2
March, 1935	14.4	June, 1937	19.3
April, 1935	14.1	July, 1937	17.8
May, 1935	13.8	August, 1937	17.2
June, 1935	14.5	September, 1937	16.1
July, 1935	14.3	October, 1937	15.3
August, 1935	15.3	November, 1937	14.7
September, 1935	15.4	December, 1937	13.7
October, 1935	15.8	January, 1938	13.5
November, 1935	16.3	February, 1938	12.9
December, 1935	16.3	Feb. 2	13.8
January, 1936	18.4	Feb. 9	12.9
February, 1936	17.5	Feb. 16	12.9
March, 1936	16.3	Feb. 23	12.3
April, 1936	15.6	Mar. 2	12.6
May, 1936	14.8		

Key cotton prices with usual comparisons follow:

	Mar. 1, 1938	Feb. 1, 1938	Mar. 1, 1937	Mar. 2, 1936
Spot Cotton, N. Y.	9.16	8.51	13.50	11.28
High previous month	9.37	8.72	13.34	11.80
Low previous month	8.51	8.38	12.95	11.25
10s hosiery cones	18	19½	29½	24c
10s/2 carded skeins	18	18½	30	24c
20s/2 carded peeler warps	21	22½	34	27c
60s/2 combed peeler warps	48	50	64	54c
60s/2 mercerized cones	63	63	76	68c
37 in., 3-yd. drill	6 3/16	6¼	10½	8 1/16c
38½-in. 64 x 60s	4 11/16	4¾	7¼	5 5/16c
36-in. 4-yd. 56 x 60s	5 3/16	5¼	8 3/16	7 1/16c
Denim, 2.20s	11	11	15½	14c

Statistics of particular interest to cotton manufacturers concerning operation and the raw material situation:

	Jan.	Dec.
Spindle activity (% capacity)	93.5	92.0
Spindle activity (millions of hours)	5,682	5,726
Cotton consumed (bales)	434,740	433,058
Cotton exported (bales)	647,481	751,001
Cotton imported (bales)	6,450	8,638

THE OVERSEERS' CORNER

The Foreman Finds His Place

In the industrial relations picture and it is important

By WILLIAM G. ASHMORE
Southern Editor, TEXTILE WORLD

THE overseer and second hand represent the most important single factor entering into the industrial or employee relations of any textile mill today, whether the management realizes it or not. This is not a casual statement, nor is it a guess. It is a conclusion reached by the writer after a personal study of industrial relations in 20 of the largest mills in the South and 7 in New England, employing a total of 134,000 persons. Other TEXTILE WORLD editors visited many additional mills, bringing the total number of employees represented to at least 175,000 persons—a sizable cross-section of the industry. The study was not confined to any one branch, but included cotton, wool, rayon, knitting, silk and finishing.

In nearly every plant visited, top management in recent years has become "foreman conscious." It realizes that the success or failure of any industrial relations program is dependent on the operating executive who is in direct contact with the man at the machine, and that each one of these supervisors must be an integral part of the company. Consequently, progressive executives are gradually replacing the old whip-cracking type of foreman with men who can command the respect and confidence of every employee. And there are about as many methods of going about this as there are mills, but all have the same ultimate goal. Foreman education seems to be the common denominator.

The first approach is usually through overseer meetings in the mill. A notable advance here is apparent in the fact that such meetings are no longer used by executives to issue curt orders to the supervisory staff with the expectation that they will unquestioningly be put into immediate effect. The clever manager knows that any overseer who passes an order down to the employees "because the management wants this done" automatically causes the employees to doubt the wisdom of the move. The modern idea is to talk over any pending change of policy with the supervisory staff and make sure that every member not only understands the situation thoroughly but is also "sold on it" in his own mind. Otherwise the change can never be completely successful. Overseers are encouraged to air their views at these conferences, and often a stubborn person can be won over to the majority viewpoint.

An antagonistic attitude, however, has no place in such a meeting and should be eliminated at once. In a number of mills separate meetings are held at the same time for second hands, the theory being that they are more likely to speak their own minds when not before their immediate superiors.

Another approach to developing the right kind of key men is through the educational type of conference where management problems are studied from the academic viewpoint. These meetings usually are held in the evening and often include dinner. The program generally includes an outside speaker who discusses broad topics such as legislation, economic conditions, personnel problems, merchandising, etc. At other times the meeting may consist entirely of a round-table discussion among the members. Some of the groups subscribe to correspondence courses in foremanship, while others study special courses worked out by their particular mill. Conferences of this type afford management an excellent opportunity to occasionally show, by graphic means, factors entering into the industrial relations picture. Such information properly understood and passed on down the line will explain many things that outside agitators attempt to explain in other ways.

A third type of education consists of training classes put on by professional lecturers at the larger mills and in industrial centers. Courses are largely of the inspirational lecture type supplemented with graphic illustrations—all aimed at putting across basic management psychology.

At one mill visited by the writer, the management believes that anything worth telling an overseer is worth putting in writing, and each supervisor is supplied with a small loose-leaf notebook containing printed information on wage rates, labor laws, social security, safety rules and other information of daily value. From time to time the book is supplemented or revised to meet changing conditions.

Nearly all New England mills and many of the larger plants in the South have central employment bureaus. Some overseers resist installation of such a department because they think it will usurp their authority in hiring and firing. This is a mistaken attitude, as a properly set-up employment department is a great help to the supervisory staff. Its purpose is to keep stray applicants out of the mill until the overseer actually needs help, and to keep records of workers as required by mill and government. Final decision in employing should rest with the supervisor.

Changing social conditions have been responsible for the employment of full-time personnel managers in some of the larger mills He is usually an expert in his line, and should not be confused with welfare or employment managers. A smart overseer realizes that the personnel manager can be very useful to him and never resents his presence. Of course there have been cases of picking the wrong man for personnel work, but usually such men do not last very long. The real duties of a personnel manager are to coordinate the broad phases of employee relations in an unobtrusive and intelligent way. He may occasionally make recommendations, but always leaves actual adjustments to the man in charge.

In conclusion, the writer believes that the operating executive is at last beginning to find his long-deserved place in the light, and that he will continue to increase in importance as long as he keeps an open mind and endeavors to stay abreast of the rapidly changing conditions of today.

CONTRIBUTIONS ***to "The Overseers' Corner" are paid for without regard to length. We will use letters discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks or practical helps will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.***

THE OVERSEERS' CORNER

Care of Cotton-Mill Machinery

By ROBERT BURGESS
(Massachusetts)

ALL machines connected with cotton manufacturing should, periodically, be given a complete overhauling. As this becomes an established system, its interference with production will be practically nil. It may be common practice to make a charge for depreciation on the basis of a 20-year period; yet in actual practice there are very few machines in which the essential or vital working parts will last that length of time. The following plan of overhauling has been successful.

In the picker-room, the machines should be dismantled at least twice a year. This would call for: a realignment of all bearings; a close inspection of all parts connected with the evener-motion; an inspection of feed rolls to make sure the flutes are in good condition; an examination of the beaters to see whether the edges are getting rounded and need to be reversed or repaired; conditioning of cages or screens so that the edges are as good as new; checking up on calender-rolls, especially the bearings; attending to fans and flues. This overhauling can be done by fitters from the shop.

In the cardroom, all cards should be given an annual overhauling. Bearings must be realigned in the most careful manner; all plates and screens are removed, cleaned, polished, and reset; the lickerin should be given the special attention which it is sure to require—including straightening or replacing teeth that are damaged, and regrinding. Top flats should be machine-ground to put them in uniform condition, each flat being ground to the same gage and made even from end to end. All working parts, gears, and shafts, must be repaired and reset. These and other miscellaneous repairs should put the card in a condition practically equal to that of a new machine.

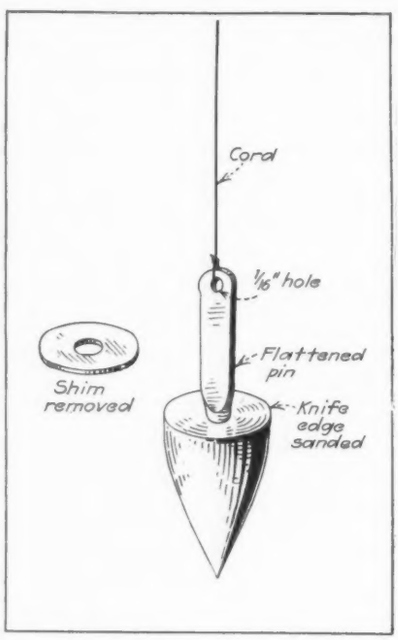
With frames it is common practice to scour the rolls from time to time. While this is being done it is good judgment to level and realign all bearings, with special attention to the roll stands and roll bearings. Practically all frames are provided with levelling screws, making that part of the work quite simple. There is no doubt that the realigning of all bearings will well repay for the little extra time it will take to do this.

In the weave room, looms should be tested from time to time as to levelness. This is especially important where wide looms are in use. Many incidental yet annoying things may be happening because the lay is not level. As to general conditions, individual-motor drive has made a great change in essential repairing and inspection. Yet it is necessary that all group-drive motors be thoroughly inspected and a report made once a week. All main-drive pulleys and belting should be examined weekly, and reports made as to the condition of the bolts or other fastenings. Belts should be given the attention they need in the way of dressing. This inspection should include all belts (with their pulleys) which are more than 6 in. wide.

Overseer's Practical Helps

Plumb Bob from Shuttle Point

In lining up winders, quillers, and other small shafting, as well as different working parts on looms, a small plumb bob made from a shuttle point comes in mighty handy. You will find old shuttles thrown away quite often, so take one and split the wood or fiber back of the steel point in order to release the point. Then remove the fiber or brass shim from the point, and smooth down the knife-like edge, at the highest part, on the sander. Next flatten the pin, center punch, and drill a $\frac{1}{16}$-in. hole through the pin. A heavy linen thread, a piece of fish line, a piece of lease cord, or other strong thread is used for the plumb line. The finished plumb bob is shown in the sketch. It's a dandy, and I should know for I have two in my tool box.



A small plumb bob made from a shuttle point is very handy in any tool chest

H. E. W., Pennsylvania

Belt Slippage

All new belts when first used are rather stiff and dry and should be given a good dressing to lubricate the fibers and make them sufficiently pliable properly to conform to the shape of the pulley and maintain full pulling power. The dressing should be of such nature that it will penetrate and lubricate the leather so that in flexing on the pulley the fibers will not chafe and weaken the belt. The best dressing for the purpose is made from 1 gal. neat's-foot oil and 1 lb. bees wax. While a belt is at room temperature on a loose pulley apply hot dressing in a thin stream with a criss cross motion, until it penetrates well into the leather. Clean off excess dressing before shifting the belt to the tight pulley. This treatment should be applied whenever belt shows any tendency toward dryness. It not only prevents slippage but prolongs life of the belts.

G. W. SHEELEY, Maryland

Beam Dyeing

In the article on "Beam Dyeing" which appeared in our December, 1937, issue, it was stated that about the year 1921 a group of southern mill men formed a company and constructed several experimental vertical type beam dyeing machines, which were soon put into commercial production; about the same time another company put on the market a machine

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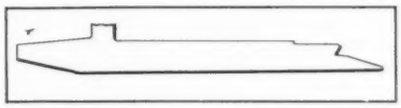
with a horizontal kier. Subsequent to the publication of this article we were advised by S. W. Jackson, secretary-treasurer, Morton Machine Works, Columbus, Ga., that in 1910 F. M. Morton, of that company, manufactured horizontal beam dyeing machines which were installed at Bradley Mfg. Co., Columbus, Ga., and Griffin Mfg. Co., Griffin, Ga. Prior to 1921 a large number of these beam dyeing machines—some of which are still in operation—were installed in mills in Georgia, North Carolina, and South Carolina. Dye beams furnished in 1910 were of the woven-wire type, but later developments proved the best dye beam to be one of perforated metal with staggered holes, according to Mr. Jackson.

Slot Opening Divider

Sometimes when a sinker breaks, and more often when the butt is separated from the blade of the sinker, the weight of the catch-bar will drive the broken butt against the bed of the sinker head and close one or more slots so the sinkers will bind or cannot be replaced. Partially or fully closed slots may be reopened with a broken butt divider ground with a long angle at the nib and having the nose rounded so it will not catch in the bottom of the sinker



Slot opening (sinker) divider.

slot, as illustrated in the sketch. The ground edges should be square but smooth. With the catch-bar up and the sinkers pushed back even with the face of the sinker bed—but left in the slots to support adjoining walls—the opening divider is pushed back as far as it will go freely in the bruised slot and then firmly grasped with a stout, blunt-nosed pair of pliers about ¼ in. from the front of the sinker bed. Then, with a few short punches (so as not to touch the front of the sinker bed), the slot may be opened. A few sinkers only are removed for the insertion of a screwdriver blade, and pressure is applied close to the surface of the sinker bed to crowd the bent wall back into place and let the divider go free. This method will leave the slots in much better condition than by sawing them out with a divider having a saw-toothed nose and will save much of the time usually required to remove and reset the head after it has been fixed.

WALTER A. SIMOND
New Hampshire

used in ground, or tension, stripes.

Two warp beams are required. It is common practice to hang the seersucker stripe as a top beam and control the amount of let-off by springs. It is also common practice to hang such a top beam wrong, and have yarn pull from a dead weight, against all principles of correct leverage. Hence, the reason many mills hesitate to accept orders for this type of seersucker stripe fabric.

The accompanying sketch shows how a seersucker warp should be hung, and the location of the tension springs. It is better to use a series of light springs rather than one heavy spring.

Amount and evenness of the seersucker effect is also dependent on the evenness of tension applied to bottom beams. If these beams are allowed to let off too easily, the seersucker effect is lost. However, it is relatively easy to control the tension on bottom beams, since most modern looms are equipped with a device that allows for the difference in the diameter of the yarn on the beam.

Seersucker, tension rep, leno, or lappet top beams should never let off from a dead-weight tension. All bottom beams should be let off either from a compensating weight lever or from a spring-controlled tension, never from a dead weight.

It is also possible to produce sim-

Questions and Answers

Tape-Loom Products

Technical Editor:

We have in our plant a number of heavy-duty tape looms which formerly were running on asbestos brake lining.

These looms are exceedingly heavy, and due to the fact that this type of lining is fast fading from the picture, we are wondering what other heavy-duty tapes can be produced on these looms so that they may be operated and employment found for our weavers.

We would appreciate it very much if you could give us ideas of some fabrics other than asbestos that we could apply to these looms.

An early reply will be greatly appreciated. (8451)

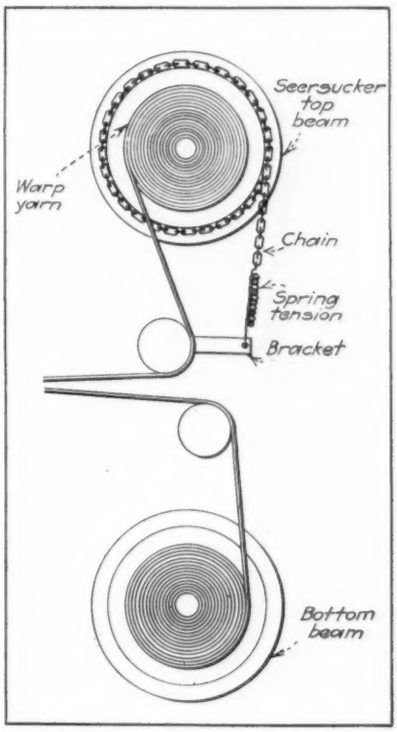
A search for new products that may be made on narrow-fabric looms is constantly being carried on by every narrow fabric manufacturer. A few suggestions: power beltings; parachute harness, both for governmental and private airlines; safety straps for telephone and telegraph linemen; and webbings for use by movers in hoisting furniture.

Production of Seersucker Effects

Technical Editor:

Inclosed herewith is a sample of cotton seersucker. Of course, the cloth does not necessarily have to be made in cotton, but may be made with any other warp material. We understand this cloth is made on two beams. What we would like to ask is: what is the proper method or attachment by means of which the second beam, where the seersucker appears, has such a uniform let-off? (8513)

The inclosed clipping is a splendid example of a well-woven seersucker stripe, often termed a krinkle stripe. This type of stripe is difficult to handle, because the sley and yarns of which the stripes are composed is the same sley and yarns as those



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ilar effects, known as plissé, by means of a printing process. In general, the process consists of printing caustic on to a fabric in the places where the effect is desired, or by printing a resist on to those portions of a cloth where the effect is not desired and then treating the fabric in a caustic bath.

Thickness of Tape

Technical Editor:

I am inclosing two samples of ¾-in. tape—one of which is bleached, and the other dyed blue. You will notice the white sample feels heavier than the blue and calipers about 0.005 more. The blue sample has more ends of 20/1 than the white, and the filling is 20/1 compared with 30/1 in the white. Do you think the difference in thickness is due to the twist of the yarn or to a method of bleaching which caused the fibers to swell? I have tried several methods of getting this feel but somehow or other fabric never seems like the original. (8474)

It is quite possible the bleaching does account for part of the difference in thickness of these two samples. However, a large part of the difference is due to the difference in the number of picks. The white sample has 44 picks, while the blue sample has but 40 picks. In several thickness tests in two, three, and four thicknesses, we find there is only 0.002 in. difference.

Warp Streaks in Rayon Fabrics

Technical Editor:

Inclosed is a sample of an all-viscose rayon fabric. We are interested in finding out what is the cause of the warp streaks. Continued processing improves the streaks considerably, but does not eliminate the defect. (8392)

We find that some of the ends have been stretched excessively; however, the chief cause of the trouble appears to be incorrect handling of the goods in the dyehouse. That is, the dye has not penetrated well and in places the size has not been removed. It is our opinion, therefore, that the goods were not properly prepared for dyeing. We suggest that you give the goods a more thorough scouring before dyeing.

More Warp Streaks

Technical Editor:

We are inclosing a sample of 280/88 acetate and rayon satin. On looking at this piece in a certain light, you will notice some warp streaks. What is the cause, in your opinion? Could these streaks be caused by the size not being boiled out properly? We never noticed these streaks before; but lately we changed the size, and since then they have appeared. (8406)

The streaks run in a zigzag line and therefore must be blamed primarily on processing after weaving. It would seem that the defect is the result of the failure of the dyer to remove the size adequately and evenly; although, in blaming him, you should bear in mind that he was handicapped by your not advising him of the change in the character of the size. In fact, we have had occasion to urge before in these columns that the dyer always be advised fully of the sizing formula used.

Holes in Hosiery

Technical Editor:

We are inclosing three stockings. Kindly advise us as to the nature and cause of holes in the fabric. We believe these holes were made in the stockings before dyeing. (8527)

We find that the holes and runs were in the stockings before they were boarded, or came in them while they were being boarded. The character of the runs shows that they are boarded out wide. If they had come in the stocking after being boarded, they would have been narrow and the ladder threads would not have been boarded out so long and straight. There is a noticeable difference in the appearance of a hole or a run boarded when they are wet and holes and runs that break in a dry stocking.

As to the cause of the holes, this would be anyone's guess, as there

News From Local Textile Clubs

Greenville Club Names Officers—At a recent meeting of the Greenville (S. C.) Textile Club, composed of overseers of textile plants in the vicinity, A. J. McMinn, overseer of weaving, Victor-Monaghan Co., was elected president,

A. J. McMinn, New President, Greenville Textile Club

and J. B. Oliver, overseer of weaving and finishing, Duck Mill, Brandon Corp., was made vice president. Loui Greet, director of the Parker Vocational School, was reelected secretary and treasurer, and D. P. Thomson, also connected with Parker schools, was named assistant secretary and treasurer. Directors are F. G. Carroll, J. W. McDowell, and I. J. Fair. The retiring president is T. E. Ross, of Brandon Corp.

Technologists Discuss Tariffs—Textiles from the tariff viewpoint was the subject of a talk by Henry Gassmann, U. S. Government's Appraisers Stores, at the American Association of Textile Technologists' meeting held March 2 in New York. The speaker reviewed the United States tariff situation from 1776 to the present time, discussed the various tariff rates which are applicable to different types of textiles, and described numerous tests which are made by the appraisers to determine correctly the proper duty to be applied to various textiles.

A general discussion period, in which Mr. Gassmann answered questions from the floor, followed the talk. At the previous meeting, Dr. J. F. X. Harold was elected president.

At the April meeting, to be held April 6, it is announced the speaker will be Constant Scholer, of National Fabrics Corp. Mr. Scholer will discuss "Jacquards."

•

Fall River Group Meets—The third regular meeting of the Textile Designers, Analysts and Technicians Associates was held Feb. 12 at five o'clock in Smith's Restaurant, Fall River, Mass. Edward Nelligan and Leo Chabot were chairmen, and the speaker was William Smith, former principal of New Bedford Textile School, who explained in detail the processes of carding and spinning of cotton yarns.

After the speeches were given the meeting was open for questions from the floor. Mr. Peter was appointed chairman for the next meeting to be held in April. Edmund B. Gifford is president and Oliver F. Bodeau, secretary.

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are so many possible causes. However, we notice that in one stocking there are two holes—one small hole about 1 in. from a larger hole. Between the two holes there is a distinct chafed line, where the stitches are partially cut. This indicates that the fabric was bruised after being knitted by being struck or caught by some sharp instrument.

Spinning Test Saves $10,000

Annually by proving that 30s warp can be spun from single roving

COMPREHENSIVE and accurate testing in connection with nearly every process in cotton manufacture will often show where thousands of dollars can be saved annually by making relatively simple changes in procedure. This is particularly true of the preparatory departments, and is dramatically illustrated in the case of a southern cotton mill which recently made a change in the spinning room that is saving it at least $10,000 annually. The changeover was made as a result of an exhaustive test which proved conclusively over much opposition that the mill could spin 30s warp yarn from 1.90 hank roving single in the creel as satisfactorily as it had been spinning the same yarn from 4.60 hank roving doubled. Details of this test should be interesting to any plant making print cloth or standard constructions from 1-in. cotton. Also, it should be noted that this procedure did not stop with the spinning room, but was carried on through weaving.

Table I illustrates how breaking strength and yarn numbers of 30s warp made from single roving compare with the same yarn made from double roving. The figures indicate that the single roving gives a slightly better break than the double roving, but the latter is more even as to break and count. An ends-down test made at the same time showed 40 ends down per 1,000 spindle hours for the single roving, as compared with 38 for the double.

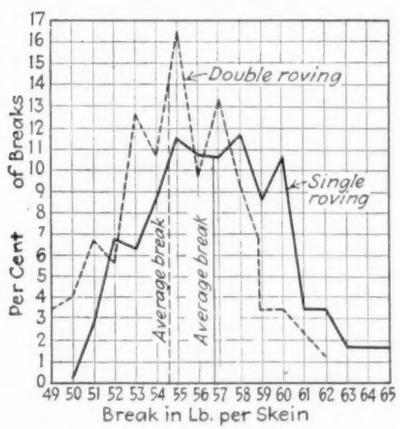

Fig. 1. Percentage of breaks in relation to breaking strength

Graph Shows Breaks

Fig. 1 graphically portrays the percentage of breaks plotted against the breaking strength per skein in pounds. The dotted line represents 175 bobbins of 30s warp spun from 4.60 hank roving double in the creel; the solid line represents 175 bobbins of 30s warp spun from 1.90 hank roving single in the creel. An analysis of the chart shows that 53.19% of the single roving breaks are above its average break, and 75.46% of the single roving breaks are above the average of the double roving. On the other hand, 56.54% of the double roving breaks are above its average break, and 30.15% of the double roving breaks are above the average of the single roving.

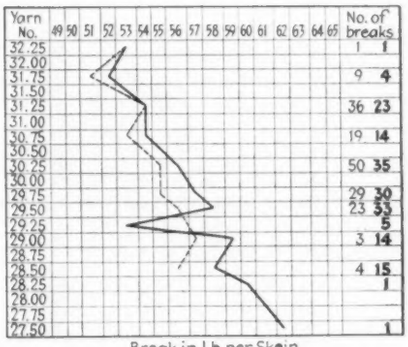
Yarn No.
No. of breaks
Break in Lb. per Skein
Dotted line and light numerals represent double roving
Solid line and bold numerals represent single roving

Fig. 2. Relation between yarn number and breaking strength

The relation between yarn number and yarn break is shown in Fig. 2. The dotted line and light-faced numerals refer to yarn spun from the double roving. The solid line and bold-faced figures refer to yarn spun from the single roving. It will be noted that in every case, with one exception, the single roving produced a stronger yarn, and it is believed that this exception would not be in evidence had there been more breaks on this number.

Table II shows what happened to the yarn after it reached the weave room. Two sets of 28 looms were started up with full beams of 30s

TABLE I—Comparison of 30s warp yarn spun from single and double roving

Test No.	Yarn No.	Break at time of test	Break corrected to 30s	Average deviation in break	Average deviation in size	No. bobbins tested
Double Roving						
1	30.20	54.96 lb.	55.47 lb.	4.31%	2.37%	25
2	30.37	53.96	54.89	3.94	1.86	25
3	30.25	53.84	54.47	3.58	2.31	25
4	30.41	55.36	56.41	3.95	1.81	25
5	30.35	54.04	54.92	4.51	1.41	25
6	30.39	55.04	56.04	4.15	2.05	25
7	30.61	56.32	57.91	3.86	1.84	25
Average.....	30.37	54.79 lb.	55.73 lb.	4.04%	1.95%	25
Single Roving						
1	30.15	56.84	57.23	3.81	1.93	25
2	29.69	56.84	56.03	5.52	1.99	25
3	29.90	56.12	55.86	5.66	2.76	25
4	29.84	56.76	56.34	3.79	2.03	25
5	29.95	57.28	57.15	4.20	1.78	25
6	29.74	57.04	56.36	5.13	2.76	25
7	30.20	56.60	57.12	4.75	2.72	25
Average.....	29.92	56.78 lb.	56.58 lb.	4.69%	2.28%	25

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warp made from 1.90 single roving and 4.60 double roving, respectively. All stops were analyzed for a total of 12 hr., broken down into two tests of 4.5 hr. and 7.5 hr. Production on the looms using yarn from single roving was 92.029% as compared with 91.626% for the double. The single roving had a total of 115 stops, 44.4% of which were due to waste on yarn, and 12.3% to weak yarn. The double roving had a total of 143 stops, 28% of which were due to waste on yarn and 28% to weak yarn. Weavers reported no trouble with either set of looms. A later test showed 94.97% production on looms using warp from single roving, and 94.14% production on looms using warp from double roving. On still another test of 60 hr. the looms using single roving ran 20,035,000 picks or 93.17% production, as compared with 19,954,000 picks or 92.79% for the double roving warp. There was a difference of 81,000 picks. Cloth was entirely satisfactory in every respect.

TABLE II—Loom stoppage test on warp yarn spun from single and double roving

	Spun from Single Roving				Spun from Double Roving			
Cause of Stop	Test 1 No. Stops	Test 2 No. Stops	Total No. Stops	Percentage of Total Stops	Test 1 No. Stops	Test 2 No. Stops	Total No. Stops	Percentage of Total Stops
1. Ball behind drop-wire	1	4	5	4.3	3	8	11	7.7
2. Knots	4	2	6	5.2	6	5	11	7.7
3. Loose ends	1	..	1	0.9	1	..	1	.7
4. Mat-up	8	3	11	8.7	9	5	14	9.8
5. Selvage breaks	3	10	13	11.3	11	9	20	14.0
6. Weak yarn	5	9	14	12.3	5	8	13	28.0
7. Waste on yarn	19	32	51	44.4	17	23	40	28.0
8. Unknown	8	6	14	12.3	13	20	33	23.1
Total stops	49	66	115		65	78	143	
Stops per loom hour	.388	.314	.342		.516	.371	.425	
Hours run	4.5	7.5	12		4.5	7.5	12	
No. looms tested	28	28	28		28	28	28	
Total picks in 24 hrs.			5937				5911	
Percent production			92.029				91.626	

Simple Dye Test

Permits hosiery dyer to avoid colors sensitive to sulphur dioxide

By WILLIAM T. LEGGIS

A FEW years ago hosiery mills were receiving many complaints from customers because of the fact that red streaks had developed in silk stockings after the hosiery had been washed and dried. This trouble was encountered more frequently in the winter months when the hosiery was dried indoors or in basements near coal or oil fires. Today most hosiery dyers are aware that this discoloration of the hosiery is due to the use of dyes which are sensitive to the fumes of sulphur dioxide. It is fairly common practice now for dyers to test all dyes to determine whether or not they are sensitive to these fumes. The test used by the writer is simpler than any which he has seen described in the literature. It requires no special equipment and gives positive results.

As some mills are still receiving complaints from the nature referred to above, before describing the test, it may be well to review the whole problem very briefly. Complaints of this nature were first brought to the writer's attention when a number of pairs of stockings were returned because of reddish streaks, most of which were along the outside folds. Later we learned that other mills were having similar complaints.

Investigation Begun

Meantime an investigation was begun and all sorts of theories were advanced, among which were:

1. The red dye used on the silk was bleeding.

2. The hosiery was being dried improperly on hot radiators.

3. The hosiery was improperly washed, using a very alkaline soap; poor rinsing was also offered in conjunction with this theory.

All these theories broke down when attempts were made in the laboratory to duplicate the stains. The only manner in which the stains could be duplicated was to expose the hosiery to sulphur dioxide fumes before drying.

The next problem was to isolate the offending dye or dyes. Individual tests made on all dyes used disclosed that the least-suspected dye was causing the trouble—a neutral-dyeing silk black of the Sulphon Cyanine type. [Sulphon Cyanine Black B (C.I.307 and Nerol 2B (C.I.304) appear to be the dyes which have been the cause of most complaints. *Editor*]

A Practical Check

To substantiate our laboratory findings with practical consumer drying conditions, stockings were washed in soaps of various alkalinities and rinsed to varying degrees. The washed hosiery was hung near coal stoves, oil-heated stoves, in basements near oil furnaces, and also in an atmosphere free from sulphur dioxide fumes. All the samples dried satisfactorily in the latter case. Of the other samples, those hung near an oil furnace showed the most pronounced streaks. Poorly rinsed stockings and those washed in very alkaline soap showed more intense streaks than appeared on hosiery which was washed in less alkaline soap solutions and rinsed well.

In all cases the discoloration was traced directly to sulphur dioxide. Fortunately it can be avoided through the use of proper dyes. In our particular case the substitution of a different silk black solved the entire problem.

In view of the trouble which may be experienced through the use of improper dyes, it is well worth while to test all dyes used for their sensitivity to sulphur dioxide fumes. The method used by the writer is as follows:

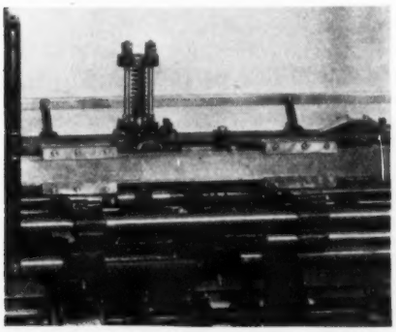
Dissolve 2 grams of sodium hydrosulphite in approximately 50 c.c. of water and heat gently to a boil. Expose a washed stocking to the fumes from the beaker for approximately 1 min. Hang the stocking to dry at room temperature.

Any dye which can withstand this test will give no trouble under normal conditions met in a household.

NEW MACHINERY AND PROCESSES

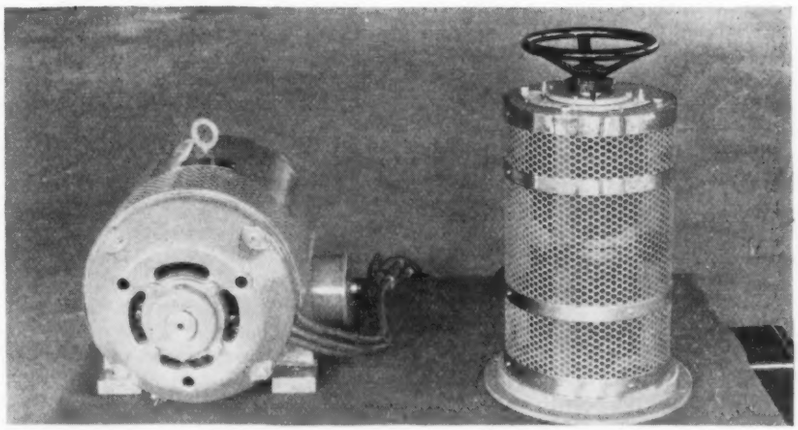
Shock Absorber for Full-Fashioned Machines

Improvements made recently by Textile Machine Works, Reading, Pa., in the Reading half-speed shock absorber for the Reading full-fashioned knitting machine make it possible to run the machine at a greater speed than has heretofore been possible, and at the same time eliminate carrier vibration, as well as to increase the active life of the machine. The changes made include the addition of 15/16-in. stop rods (leggers only) and movable cam-pieces that gradually reduce the carrier speed to zero at point of contact with the end stop. The degree of shock is, therefore, greatly reduced from that produced by the earlier type of half-speed shock absorber. Shock-absorbing effect is obtained throughout the narrowing, and with equal intensity at all points of carrier-rod travel.



Half-Speed Shock Absorber (Textile Machine Works)

As in the original device, this mechanism includes the safety device and the improved splicing attachment, in addition to the 15/16-in stop rods. The improved splicing attachment provides the means for operating the splicing carriers at half-speed when the machine is running at full speed. The stop rods, through the use of suitable brackets, effectively prevent buckling of carrier rods ordinarily caused by the additional strain placed upon them from the time they hit the end stops until couliering is completed. Illustrated is a rear view of the shock absorber showing the 15/16-in. stop rods.



Variable-Speed Motor (Crocker-Wheeler)

Variable-Speed Motor

Efficient and stable speed regulation over a wide range are among the advantages cited for a new, three-stage, alternating-current, adjustable-speed motor developed by Crocker-Wheeler Electric Mfg. Co., Ampere, N. J., and being marketed under the name Polyspeed. Advantages claimed for this new motor include fully continuous speed regulation, without rheostat losses; shunt motor characteristics with the speed practically independent of the load; constant torque throughout the entire speed range; simplicity of construction; across-the-line starting; remote control, if required.

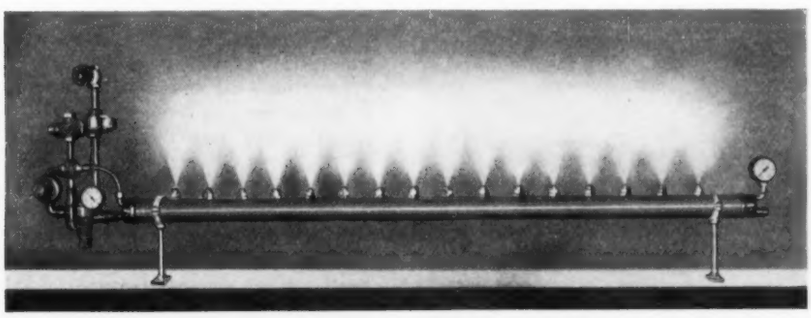
It is stated that the speed control of the Polyspeed motor is wholly continuous, and that it is possible to obtain any speed whatever between a minimum speed slightly above standstill up to a maximum speed of approximately 1,800 r.p.m. by turning the rotor of the speed regulator through an angle of 180 deg. The motor is cooled by means of a fan operated on the motor shaft; sustained operation at speeds below 600 r.p.m., at which the shaft-mounted fan is not sufficiently effective, is made possible by provision of a separate, constant speed, motor-driven blower.

The Polyspeed motor should find many applications in textile mills. It is believed to be particularly well adapted to driving spinning frames and other machines which require an easily and accurately adjusted speed. It is stated that the motor can be equipped with an automatic device for speed regulation, which, by coupling to a spinning frame, will automatically compensate for the change in the diameter of bobbins during spinning.

Automatic Web Spray

For emulsion spraying on wool mixing pickers, spraying of olive oil on gill boxes, moistening cloth on embossing machines, applying solutions in finishing processes, conditioning worsted cloth, and other similar applications a new automatic web spray is being offered by R. I. Humidifier & Ventilating Co., Boston.

The sprayer consists of a spray manifold of required length and predetermined number of atomizing nozzles, together with an adaptation



Automatic Web Spray (R. I. Humidifier)

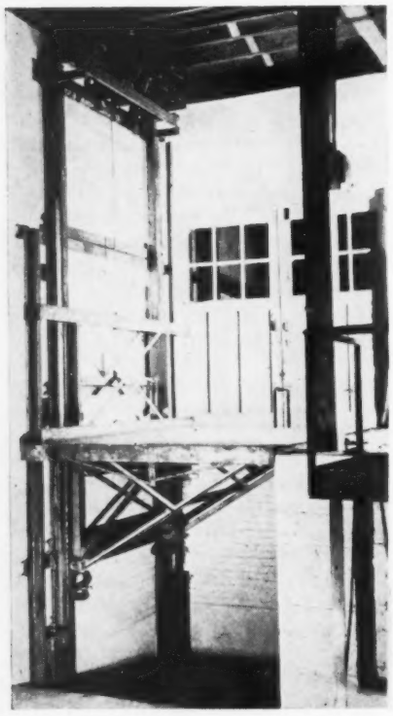
of a humidifier head manufactured by the same company, and air and liquid control valves and pressure gages. It is stated that separate control of the air and liquid elements results in complete control of the volume of liquid atomized and the degree of atomization; or, if the liquid volume is increased, the same or any degree of atomization can be maintained.

Advantages claimed for the new sprayer are its simplicity, the fact that no valuable space is required for its installation, its economy, and its flexibility of application.

Freight Elevator

For one-story service, a new type of elevator capable of lifts up to about 12 ft. has been developed by Revolvator Co., North Bergen, N. J. The new elevator, which is known as the "Wallclimber," is said to be efficient not only with regard to power consumed, but to take up a minimum amount of space. It is stated that rails, cables, anchorage, and counterweights take up only 11 in. along one side, while elevator machinery is located overhead. Capacities range up to 5,000 lb. and car size to 7 x 10 ft.

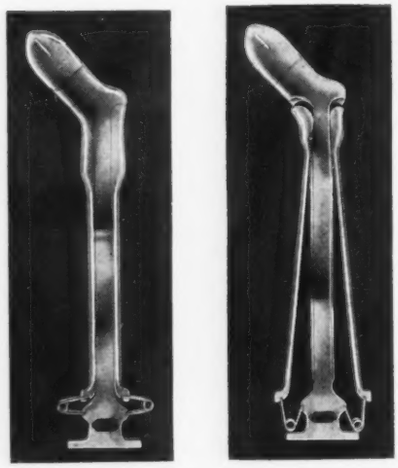
An important advantage claimed for elevators of this type is the fact that any or all of three sides of the car are available for openings. In the accompanying illustration, which was taken during installation to show construction details, doors open on a loading platform, while two levels inside are also served. Construction of guides and supports is such that they can readily be removed and set up at a new location of similar dimensions. The manufacturer states these elevators are equipped with instantaneous self-aligning type safety devices, which act in the event any cables break.



Freight Elevator (Revolvator)

Hosiery Drying Form

Under the trade-mark "Paraflex," Paramount Textile Machinery Co., 538 South Wells St., Chicago, has recently introduced a changeable-contour hosiery drying form. Any one of several predetermined form outlines can be secured by application and/or detachment of side pieces. Ability to make these changes results in a form of unusual flexibility. It is stated that the new form will find its most important application in mills producing children's goods and styles of half hose, anklets, etc.; furthermore, that one form, including suitable attachments, can be employed for drying anklets, half socks, 5/8ths, 3/4ths, 7/8ths, and full-length stockings.

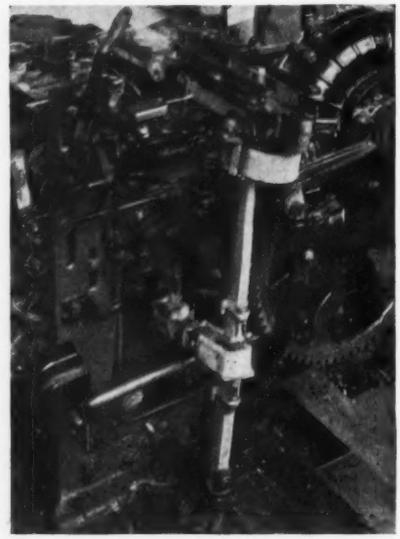


Hosiery Drying Forms (Paramount)

Easily-operated springs at the lower end of the form body facilitate quick attachment and removal of the side pieces, while holding them in close contact with the form body during drying. Cast aluminum is used throughout.

Micarta Picker Sticks

Improved picker sticks obtained by treating wood with a phenolic process similar to that used in the manufacture of Micarta have been announced by Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.



Micarta Picker Stick on Loom (Westinghouse)

This process is said to retain the flexing characteristics of the wood and greatly to increase the operating life of the picker stick. Thus, it is stated that in a trial installation of Micarta picker sticks made in a silk mill there has not been a single failure for over three years. In another installation in a broadloom carpet mill Micarta picker sticks have been in service for over 8,000 hr. without failure. The design of Micarta picker sticks differs slightly from that of ordinary hickory pickers, because of the weight and flexing characteristics of Micarta. However, the base is such that no change or modification of the socket or boot is required to mount the new type of stick. The chief advantages cited for the new sticks are the reduction in weaveroom costs and increase in production due to the fact that they practically eliminate loom shut-downs.

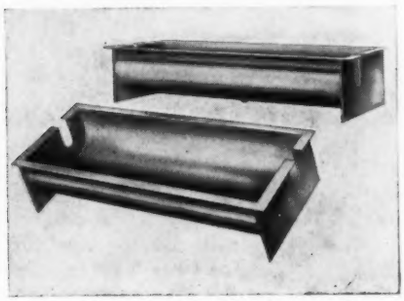
Process Heat System

A new system of process heating, known as the Supertherm system, has been announced recently by J. O. Ross Engineering Corp., 350 Madison Ave., New York. This system, which makes use of "superheated water," appears to have a number of applications in the textile industry. It has been employed extensively in Europe, and last fall was installed in the new General Electric plastic molding plant, Pittsfield, Mass., where it has shown a 30% fuel saving over older methods of heating molding presses. No traps are necessary. The salient feature of the system is that it uses water at temperatures above 212° F. Thus, at

the G.E. plant, water is drawn directly from the drums of the steam boilers at a temperature of 370° F., passes through the mold-heating elements, and returns to the boiler at temperatures ranging from 358 to 362° F. The water-transmission system is all-welded and completely closed. The boilers are normal steam-generating units, and supply steam for space heating and power plant auxiliaries, as well as for the Supertherm system.

Stainless Steel Jacketed Size Pan

Complete rounding of both horizontal and vertical corners is an outstanding feature of a new stainless steel size pan developed by S. Blickman, Inc., Weehawken, N. J. This feature is designed to afford a perfectly smooth interior to which sizing will not adhere. The size pan is

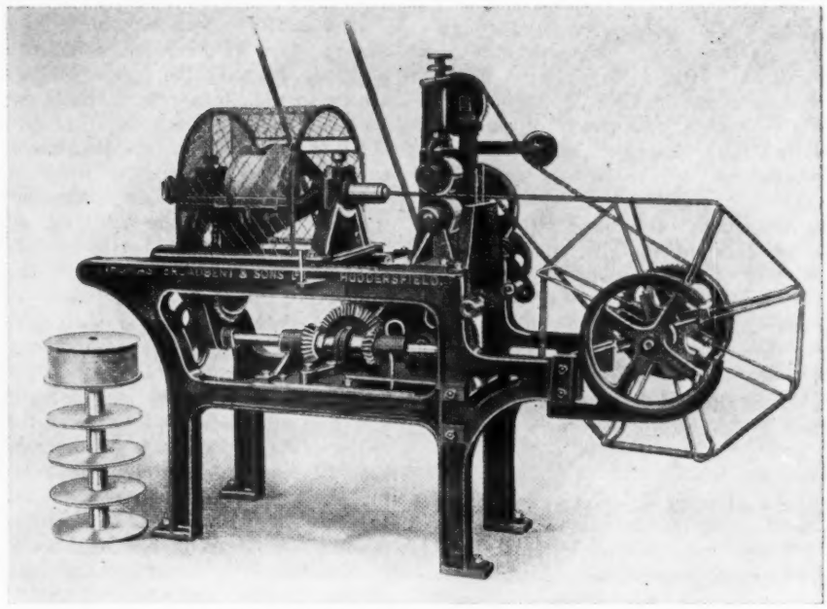


Jacketed Size Pan (Blickman)

fabricated from an alloy containing a low-carbon stainless steel and 2 to 4% molybdenum. An outer jacket which extends around the entire pan is welded securely to the inner jacket. Sufficient bracing is used to insure against bulging. Advantages claimed for the new size pan include superior resistance to corrosion and oxidation, and more even transfer of heat. Fittings for use with these tanks are furnished to suit individual requirements.

Continuous Curling Machine

For producing curled yarn an improved continuous curling machine is now being manufactured by Thomas Broadbent & Sons, Ltd., Huddersfield, England, and marketed in this country by Atkinson, Haserick & Co., 152 Congress St., Boston. It is stated that, using this machine, continuous curled yarn can be produced at a cost 75% cheaper than that for hand-curled yarns.

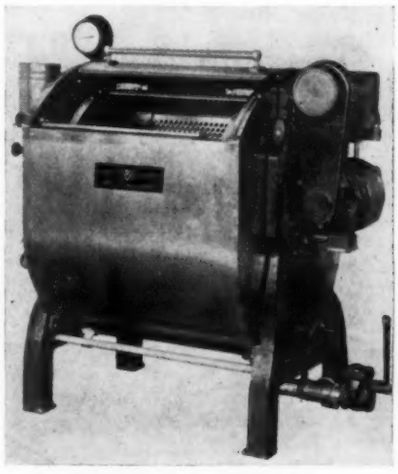


Continuous Yarn-Curling Machine (Atkinson, Haserick)

Yarn to be curled is first wound on aluminum spools in the usual manner. Each of these spools, however, is wound with whatever number of individual ends it is desired to curl together, the number of ends being determined by the counts of the yarn and the class of curl it is desired to produce. From the winding machine each spool is fixed into the flyer of the curling machine, and the ends are taken through a grooved nose-piece, and led forward through draw-off rollers onto a swift. At this stage, the curling mechanism is started up and the yarn feeding forward is twisted securely into the form of a rope, which passes forward automatically and is put up on a large swift. The process goes on continuously; as the feeding yarn runs off the spool, the skein of twisted yarn is completed, taken up automatically and a new spool inserted into the flyer.

The twisted skeins from the curling machine are next boiled in clean water for two hours and then dried. When the twisted skeins enter the water, they contain only a temporary curl: when they emerge and are dried, the curl has taken on a permanent set or wave.

It is stated the Broadbent machine will handle mohair, wool, and similar yarns, equally well.



Hosiery Dyeing Machine (Venango)

Hosiery Dyeing Machine

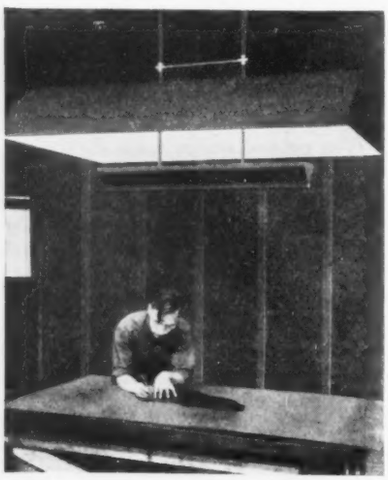
Development of a new rotary-type hosiery dyeing machine has been announced recently by Venango Engineering Co., Inc., G & Venango Sts., Philadelphia. The outstanding feature of this machine is a floating rotary cylinder designed to allow the hosiery to float freely and rise in the liquor; receive a lengthwise expansion and crosswise contraction; and be subjected to uniform penetration of the dye liquor at all points, including the back-leg and foot seams. Among the advantages cited for this construction are that it eliminates tangling, chafing, and streaks.

The Venango Floating Rotary hosiery dyeing machine is constructed of stainless steel, with silent oil-sealed, ball-bearing drive; splash-proof motor; and oversize reversing switch. Water inlet is from the bottom of the tank through a special fitting. This feature is said to insure floating to the surface of all

scum, which then passes out through an overflow pipe. The machine is equipped with a liquid-level gage, thermometer, draw-off tap, dye mixing container, and steam pipes. The cylinder is designed to give easy penetration of the liquor from the center of the machine, as well as other points, and perforations are hand finished to give smoothness; cylinder compartments are fitted with fool-proof door locks; the compartments are interchangeable and can be removed and replaced without disturbing the entire machine. The machine is available in various sizes.

Localized Lighting Unit

A new canopy-type line of localized or supplementary lighting units is now offered by the Fostoria Pressed Steel Corp., Fostoria, Ohio. The new



Localized Lighting (Fostoria)

unit was developed to provide a relatively large spread of diffused illumination, with a minimum of brightness and glare from the light source. The canopy units are available in several sizes to suit individual installation requirements.

Adjustable Shuttle Binder

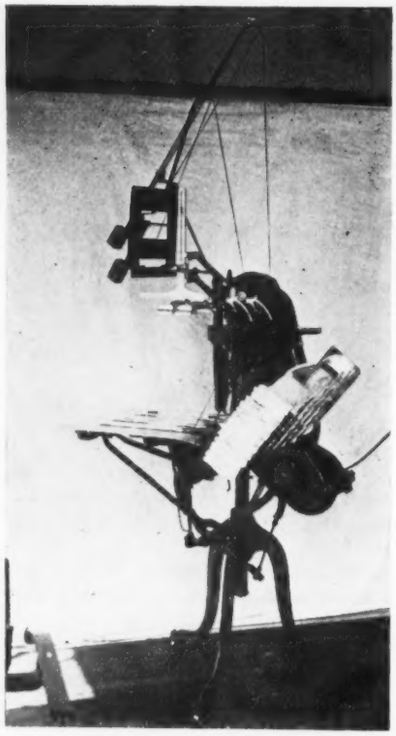
A new adjustable shuttle binder is being marketed by Silk City Metals Coating Co., Inc., Paterson, N. J. The binder is constructed in two parts, a malleable iron outside binder and an adjustable steel inside binder.

It is stated that the outside binder always stays in the same shape and position and only the inside binders are adjusted, thus eliminating unnecessary adjustments of the protectors, and that the inside binders can readily be adjusted for wider or narrower shuttles. The manufacturers assert that the banging off of looms caused by old-style binders is eliminated, as the spring of the adjustable binder takes care of slight variations in the size of shuttles caused by changes of temperature or moisture in the air; that longer life of shuttles is obtained; and that the pick on looms can be reduced at least 50% when the new type binders are used, thus prolonging life of pickers and picker sticks.

It is further stated that shiners produced by conventional steel binders and through heavy pickage are eliminated when the new binders are used, and that creeping of shuttles, especially on 4 x 1 or 4 x 4 looms, and on all woolen looms, is eliminated.

Bundle Tyer

With a new bundle tyer announced by National Bundle Tyer Co., Blissfield, Mich., bundles of socks can be tied at each end, with braid or twine, in bundles of six or twelve pairs, in one operation. The machine, known as No. 12 DF, is equipped with a packing device which assures compact bundles; the packer can be thrown out of operation if a compressed bundle is not



Bundle Tyer (National)

required. The No. 12 DF bundle tyer is available either in a table model, or a floor model fitted with casters so that the machine can be moved from place to place at will.

In addition to its use for bundling socks, the machine can be employed for tying bundles of sheets, pillow cases, underwear, towels, garments, bolts of cloth, etc.

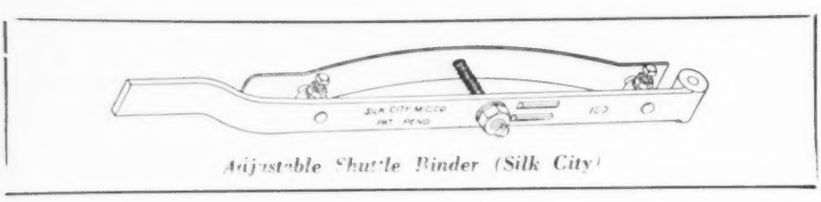
NEW DYES & CHEMICALS

General Dyes

General Dyestuff Corp. announces the following new products: Supramine Pure Blue GL, a homogeneous acid wool dye producing bright greenish shades of blue of good fastness to light; very good fastness to carbonizing and decatizing; and good fastness to water, washing, fulling, bleaching, and sea-water. Naphtol AS-DB, a highly substantive Naphtol, which yields, in combinations with a variety of diazo compounds, full shades of brown possessing very good fastness properties; the most important combinations are dischargeable to a good white with Rongalite C, and colored discharge effects can be produced on their dyeings with vat dyes. Indanthren Scarlet GK Suprafix, a Suprafix dye in paste form yielding a fine, clear shade of bright scarlet of excellent fastness to light and weather; it is printed by the usual potash-Rongalite process; dyeings are dischargeable to a white with alkaline Rongalite C and Leucotrope WX.

Cold Size

For sizing rayon, acetate, spun rayon, and blended yarns, Thomas W. Dunn Co., 546 Greenwich St., New York, has developed a new compound which can be applied at room temperature. This material, known as Raytate, is poured into cold water in the proportions desired and run in the size pan at room temperature. As Raytate withstands temperatures up to 160° F. without



Adjustable Shuttle Binder (Silk City)

deterioration, the temperature in the size pan can be raised if desired, permitting application to be carried out cold or at an elevated temperature, as preferred.

Finishing Agent

General Dyestuff Corp., 435 Hudson St., New York, announces a new finishing agent for rayon. This compound, Appretan WL, produces a heavy filling on rayon fabrics, or mixtures of cotton and rayon, without giving a harsh handle. It is a slightly yellowish, viscous liquid, easily soluble in water and neutral in reaction. Appretan WL is applied only in cold liquors. It can be used with softening agents such as Soromine WL. Appretan WL is said to be particularly suited for finishing rayon lining fabrics.

NEW PUBLICATIONS

TEXTILE TESTING, James Lomax; Longmans, Green & Co., 114 Fifth Ave., New York; 176 pages, $3.

This book, written by the manager of an English textile testing establishment, deals with the identification of textile fibers, the methods of sampling and testing for condition, count, length, strength, twist, etc., with special reference to the rapid and accurate performance of the calculations involved. A section is devoted to the statistical treatment of results. Testing for fastness, shrinkage, chemical damage, and the chemical estimations of mixed fibers, impurities present, etc., are also dealt with. A further section contains useful information regarding constants, formulas for calculations, and tables for the quick reading of a variety of results.

The book is designed to be of assistance to students in textile schools, to those engaged in the testing departments of textile mills, and to those in administrative positions who require some knowledge of the tests and calculations upon which commercial transactions are carried out.

AN INTRODUCTION TO THE STUDY OF SPINNING, by W. E. Morton; Longmans, Green & Co., 114 Fifth Ave., New York; 267 pages, $4.50.

In this volume the author's aim has been to direct the student's attention to the fundamental nature of the processes through which textile raw materials have to go in the course of yarn manufacture; to show how the evolution of the various modern machines from the original appliances has been influenced in each case by the character of the raw material it is desired to treat; and to exclude so far as possible all references to confusing mechanical complications until there is no longer any risk of their crowding out of the picture the things that really matter.

The book is divided into two parts, the first of which, roughly half of the volume, is devoted to raw materials. Separate chapters are included on wool; silk; cotton; flax; hemp, jute, and ramie; and rayon. In the second section of the book, the author discusses in some detail the carding, combing, and spinning processes. An appendix to this section contains brief notes on sequences of operation in the woolen, worsted, cotton, and flax spinning industries.

HANDICRAFTS OF THE SOUTHERN HIGHLANDS; by Allen H. Eaton, Russell Sage Foundation; $3.00.

"Shucks, ain't it grand, the things they is to do and to find out about." And, in those words of a southern highland woman we have the underlying reason, excepting that of absolute necessity, for the preservation, generation after generation, of the art of highland handicrafts.

The fascinating story and living romance of the highlanders' craft-work is clearly told in "Handicrafts of the Southern Highlands." It combines folklore, characterizations, and economic problems in a manner that is both interesting and illuminating. It gives the reason for establishing the Southern Handicraft Guild, and the methods of expanding the work of the organization through the cooperation of the American Federation of Arts, the American Country Life Association, and the Russell Sage Foundation. It makes us thrill to the untiring zeal of those who are actually missionaries in the handicraft field.

Aside from the comprehensive fund of practical information which the book holds, the marvelously done photographs of Doris Ulman make it an extremely valuable addition to any library.

THE OLD SOUTH: Struggles for Democracy; by William E. Dodd; MacMillan Co., New York; $3.75.

A narrative history of the most readable nature covering a period through the 17th century and a specific geographical area of Maryland, Virginia and Carolina, this book lays the foundation for three volumes to follow.

We get a concise picture of the struggles to found a democracy: struggles which embraced great natural hardships, trials of settlement, disaster from illness and starvation, and political, religious, judicial and economic tangles.

The struggle for democracy was down a tobacco road, for that crop was the alpha and omega of the cause. It is particularly interesting to realize that as early as 1630 planters were endeavoring to emerge from a depression through crop-curtailment legislation, and consequent raising of prices. It is also interesting to note that in each trial of this unoriginal plan over an entire century the old law of supply and demand emerged triumphant.

At any rate, the reader has a better insight into present-day troubles after reviewing the long-term similar economic disasters of a past era. This statement is based upon the supposition that the average business man, in textiles for instance, forgets details of history—immersed as he is in the throes of making history as we today struggle to retain democracy.

THE WASTED LAND; by Gerald W. Johnson; University of N. C. Press; $1.50.

Author Johnson, native southerner, gives the real low-down on the southeastern region of the United States when he tells us that the fundamental trouble with that country is simply waste: waste of land, waste of people, waste of opportunity. This is not an original thought with Mr. Johnson, for all thoughtful, honest southerners —including the reviewer—have known this for a long time. They have done nothing about it, however, and Mr. Johnson has, at least, brought the skeleton out of the closet and counted its vertebrae for us.

He shakes his finger in the face of the South as he tells us that the muddy southern rivers have carried an area the size of the State of North Carolina down to the sea; that 97,000,000 acres of land have been made useless by erosion, leaching and overcropping; that only one-fifth of the one-time 125,000,000 acres of long-leaf pine is left; that 3,500,000 southern men with ambition have found themselves compelled to leave the South seeking opportunity elsewhere.

Mr. Johnson does more than just tell us our fundamental trouble; he points out the direction of the answer. Since no problem, can be solved until all the facts are known we are fortunate to have this book for a text. If any one written piece can stir the South out of its lethargy and set it to mending its fences, The Wasted

Land will. Every southern man, certainly every southern industrialist, should read this book. It has a definite message for southern leaders.

RECURRING CYCLES OF FASHION; by Agnes Brooks Young; Harper & Bros., New York; $3.00.

Refuting an old belief that fashions are determined by events, the author of this comprehensive study claims that the evidence indicates that fundamental and durable changes which are embodied in fashion cycles are independent of historic events, of epochs of thought and ideals, and of artistic periods, although some at least of these things occasionally leave a trace on dress. She proves through sketches and statistics that fashion trends are cycles with an approximate 35 years each or three to the century and that all are predicated upon 3 types of skirts: bell, backfulness and tubular. "But," she says, "fashion is evolution without destination."

This book will find a niche in the libraries of many types of readers: the fashion designer or coordinator, the textile manufacturer, the fashion editor, even the student of history or the author who seeks to accurately portray moods of long ago or times just recently passed.

NEWS OF SUPPLIERS

Amalgamated Dyestuff & Chemical Works, Inc., 75 Hudson St., New York, announces the appointment of Leonard S. Little as treasurer of the company. Mr. Little, who until recently was president of the United States Finishing Co., will be associated with J. Pfister, president of the company, and will have charge of research and production at the manufacturing plant in Newark, N. J. Following his graduation from Brown University in 1907, Mr. Little successively held the following positions: chief chemist Apponaug Co., and president Narragansett Chemical Co.; assistant superintendent first of the Pawtucket branch of U. S. Finishing Co. and later of Pacific Mills Print Works Division; in charge of the Lyman, S. C., unit of U. S. Finishing Co.; general manager of Joseph Bancroft & Sons Co.; president and general manager of Slatersville Finishing Co.; president and general manager of United States Finishing Co. and its subsidiaries. The new Amalgamated management is planning to extend its line of products to include vat and naphthol colors, in addition to the acid, basic, chrome, direct, developed, sulphur, and acetate dyes now being manufactured.

John Campbell & Co., 75 Hudson St., New York announces the election of J. Pfister as president, treasurer, and director. Mr. Pfister is also the president of Amalgamated Dyestuff & Chemical Works. He was formerly with Calco Chemical Co., and before that was owner of Wetterwald & Pfister. Leonard G. Tubbs has been elected director and secretary of the company. For a number of years Mr. Tubbs was purchasing agent for the United States Finishing Co., and, more recently, for National Dyeing & Printing Co. George C. Lommel continues as divisional sales manager, and Gustave H. Lind will be in charge of the bookkeeping and credits. Melvin Steen of the law firm of Root, Clark, Buckner & Ballantine, was also elected to the board of directors.

Alester G. Furman Co., Greenville, S. C., is this year celebrating its 50th anniversary. The company, founded in 1888, is widely known in the field of textile investment.

Dr. Irving J. Saxl, manufacturer of precision testing equipment, recently announced that F. H. Hughes, Greenville, S. C., will represent his firm in the South.

United Clay Mines Corp., Trenton, N. J., has approved expenditures of approximately $60,000 for new construction at their plants in Florida, Georgia, Pennsylvania and Tennessee.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., announces that George H. Bucher, executive vice-president, has been elected president of the company, succeeding Frank A. Merrick, president since 1929, who was elected vice chairman. The company reported that 1937 business was 25% above that of 1936.

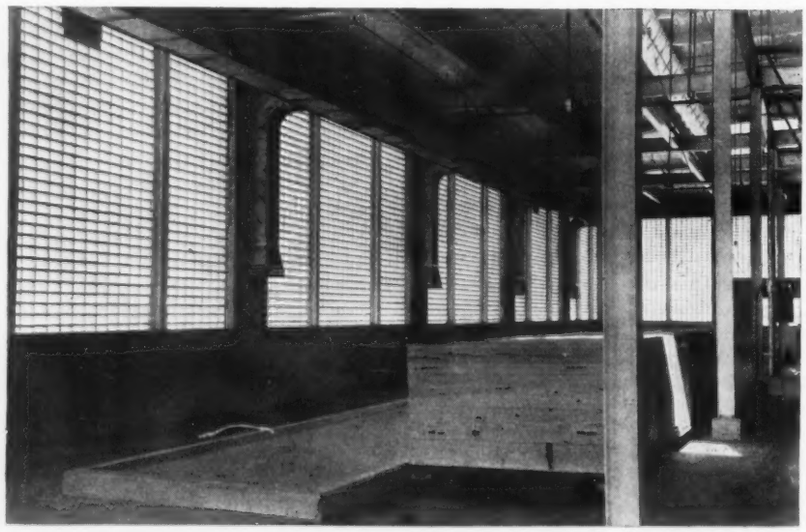
American Blower Corp., Detroit, Mich, announces appointment of H. H. Hill as manager of the Charlotte, N. C. branch, succeeding the late John Kidd.

Blackstone Machinery Co., Lonsdale, R. I., has purchased the National Textile Machinery Co., Inc., manufacturers of National Knitting Loom, of Lonsdale, R. I. The Blackstone company is a new corporation formed by a group of Boston and R. I. textile financiers; James D. Heffernan is president. It will undertake expanded production of National looms.

U. S. Testing Co., Inc., Hoboken, N. J. announces that it has established a complete local testing service at Greensboro, N. C., in charge of Stanley J. Gillie.

Modine Mfg. Co., Racine, Wis. announces that the Paul R. Winston Co., of Dallas has been appointed Modine representative.

Celluloid Corp., New York, has decided, because of overlapping fields and other considerations to drop the name of Protectoid and give its transparent packaging materials the name of "Lumarith"—the plastic from which it is made.



Glass-block walls are a feature of new mercerizing bleach house at Riverside & Dan River Cotton Mills, Danville, Va. This type of construction resists the deteriorating effect of chemical vapors, gives a maximum amount of diffused daylight, and retards transmission of hot or cold air. Ventilation is supplied through automatic equipment, which exhausts vapors through louvres anchored in the walls. Building was designed by Lockwood-Greene Engineers, Inc. Photo from Owens-Illinois Glass Co., Toledo, Ohio.

Photo by Coxe, Greenville

View of new Whitin warp spinning which has been installed in the American Spinning Division of Florence Mills, Greenville, S. C., as part of a general modernization program which has been going forward for several months. The frames are 3¼-gage, have 1¾-in. rings, 7½-in. traverse, and use 8¾-in. bobbins. Each is equipped with 10-hp. G-E motor and Rockwood drive. Overhead bunchless cleaners have been installed over the frames. Other equipment includes two new Barber-Colman spoolers and two superspeed warpers made by the same company. The mill building has been repaired and put in first-class condition. Much work has been done in the village, including painting and repairing all houses and beginning a program of landscaping grounds. The mechanical part of the modernization is expected to be completed some time next summer.

U. S. Steel Corp. of Delaware, Pittsburgh, Pa. has announced the appointment of Charles R. Moffatt as director of advertising, under C. V. McKaig, vice-president. Mr. Moffatt has been advertising manager of Carnegie–Illinois Steel Corp. since organization of that company Oct. 1, 1935, and director of exhibits of United State Steel Corp. since July 1, 1935.

Foxboro Co., Foxboro, Mass., announces that Robert V. Hamilton has been appointed resident sales engineer in charge of the Birmingham Ala. district.

Carnegie-Illinois Steel Corp., Pittsburgh, Pa., has announced the appointment of G. Reed Schreiner as advertising manager. Mr. Schreiner, who has been assistant advertising manager of Carnegie-Illinois since organization of the company Oct. 1, 1935, succeeds Charles R. Moffatt, recently appointed director of advertising of United States Steel Corp. of Delaware.

Commercial Factors Corp., New York, announces appointment of G. D. Moran as advertising manager succeeding Paul Messner, who had been serving in that capacity for the past four years. Mr. Moran formerly had been handling sales promotion work for Acme Fast Freight, Inc., New York.

South Bend Air Products, Inc., South Bend, Ind., a new firm, has purchased the ventilating equipment business conducted by the Industrial Fan Division of the Bendix Products Corp. The president and general manager of the new company is Marshall A. Smith, Jr., formerly in charge of sales and engineering of the Bendix Industrial Fan Division. The complete line of fans and other equipment is being continued under the trade names "Dynaflow" and "Aerospot".

Steel Heddle Mfg. Co., Greenville, S. C., announces that I. G. Moore and Pete Daniel, who, as the Textile Supply Co. of Dallas, Texas, have long represented Steel Heddle in the Southwestern territory, will now represent Steel Heddle's new Atlanta Division, formerly the Atlanta Harness and Reed Mfg. Co., manufacturers of twine harness and reeds; Messrs. Moore and Daniel will service the Texas area.

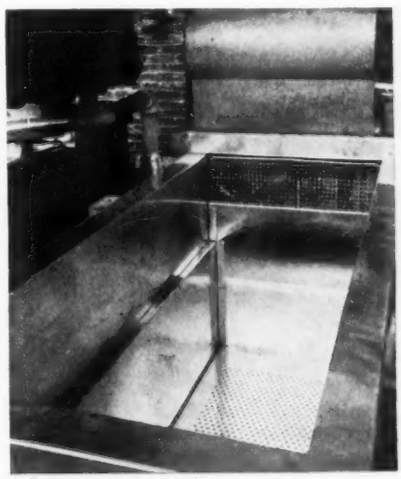
Bunting Brass & Bronze Co., Toledo, O., announces the following changes of sales staff personnel and locations of branch establishments. William C. Bracken has been appointed to the South Eastern area, with headquarters at 296 Ivy Street N. E., Atlanta, Ga. In Los Angeles, Calif., the company is consolidating its warehouses in one plant at 240 West 18th St., under supervision of I. Eldred, formerly of the Kansas City offices. Allan Hasty of the Toledo office will replace Mr. Eldred in Kansas City. On March 15 the Seattle, Wash., stocks will be placed in the T. F. Barsby automotive warehouse at 1722 Broadway. Frank Breisacher, assistant sales manager, is supervising the changes.

Allis-Chalmers Mfg. Co., Milwaukee, Wis., announces that Leon A. Watts has been appointed to succeed the late Samuel Moore as general superintendent of the service and erecting department. The same firm announces that George Callos has been appointed assistant manager in charge of sales promotion embracing advertising, bulletins, exhibitions, house organs, etc., and that A K. Birch has been appointed assistant manager in charge of market analysis, sales organization service embracing price books, data and sales information, and the distribution of literature.

Procter & Gamble, Cincinnati, announce that Clarence J. Huff, general sales manager for many years, has been elected vice-president in charge of sales. Thos. J. Wood, western manager, succeeds Mr. Huff.

Atlas Powder Co., Zapon Division, Stamford, Conn., states that since their introduction Zatex lacquer printing compounds have been employed in printing approximately 2,000,000 yd. of silk, rayon, and other fabrics (exclusive of cotton).

(*Continued on page 114*)



One of several stainless steel tanks installed recently by Clark Thread Co., Bloomfield, N. J., for dyeing skeins of worsted yarn; tanks were fabricated by Hussong, Walker, Davis Co., Philadelphia, from Enduro stainless steel, a product of Republic Steel Corp., Cleveland, Ohio.

THE PERSONAL PAGE

C. M. McLeod has been elected president of the Consolidated Textile Corp., New York, succeeding **F. K. Ruppprecht,** resigned. Mr. McLeod was elected pursuant to an order signed by Judge Henry W. Goddard of the Southern District of New York. **Henry B. Stimson** has resigned as secretary-treasurer of Consolidated.

William Westervelt has been elected director, vice-president and assistant secretary of Deering, Milliken & Co., New York.

D. W. Anderson, president of Pacolet (S. C.) Mfg. Co., has been elected president of Judson Mills, Greenville, S. C., succeeding **G. H. Milliken,** resigned.

Prentiss M. Terry has been elected executive vice-president of the Southern States Industrial Council. He served at one time as commercial attache in Brussels. When NRA was first launched, he was appointed to a supervisory position in connection with setting up organizations in 40-odd States, including all the southern States except one. Withdrawing from Federal Government activities before NRA was declared unconstitutional, he accepted a position with the University of Louisville. **C. C. Gilbert** was re-elected executive secretary of the Council, a position he has held since its inception. **Fitzgerald Hall,** president of Nashville, Chattanooga & St. Louis Railway, was elected president of the Council.

Prentiss M. Terry

Clarence J. White, Jr., chief engineer of Callaway Mills, La Grange, Ga., and **S. Y. Austin,** sales manager for Callaway Mills, sailed Feb. 25 for Germany, where they will visit the Leipzig Trade Fair. They will return in April.

President Robert W. Dana of the Boston Wool Trade Association (center) telling Arthur Besse (right), president National Association of Wool Manufacturers, what Summer Street thinks about the business outlook, while Moses Pendleton (left), president American Woolen Co., scrutinizes the press photographer between courses at the 24th annual dinner of the Boston organization. Nine hundred members and guests attended this "Cheer Up Dinner", which was followed by a fine entertainment keyed on the "Good Old Days of the Gay Nineties", under Frank D. Gardiner, chairman house and entertainment committee and James Barnard, impressario.

K. M. Biggs, Lumberton, N. C., was recently elected president of Jennings Cotton Mills, of that city, following the resignation of **H. B. Jennings,** who had been an official since 1900.

Laurence N. Hale, Marshall Field & Co., Manufacturing Division, Spray, N. C., has been made production manager to succeed **Luther H. Hodges,** recently promoted to general manager, as reported in these columns last month. Mr. Hale, before becoming affiliated with Marshall Field & Co. in 1933, was connected with La Porte (Ind.) Woolen Mills.

Gino Olivetti has resigned as president of the Cotton Institute, Italy, and as vice-president of the Textile Guild of Italy, the Italian Government announces at Rome.

Wm. Knipscher has been elected president of Colonial Piece Dye Works, North Bergen, N. J., **Dean M. Lewis** continues as secretary-treasurer.

C. W. Geier, who resigned recently as superintendent of weaving at Duplan Silk Corp., Hazleton, Pa., was honor guest at a dinner attended by 600, in Hazleton recently.

Charles Fowler, formerly partner in Bloom, Fowler & Co., New York, which firm has been dissolved, had been elected vice-president of National Silk Spinning Co., New York, specializing in the staple fiber division, it is announced.

Wm. McKinney, of Walter Janvier, Inc., New York, drug firm, has been elected president of the New York Wool Club. Other officers elected were: vice-president—**Graham Wright,** of Petley & Co., New York; treasurer—**Robt. E. Kerr,** vice-president American Thread Co., New York, **L. Frank Kohler,** was reelected secretary.

W. F. Norton, instructor in athletics at Staunton Military Academy, Va., has been named manager of the new $75,000 recreation center at the Waynesboro, Va., plant of the Rayon Division, E. I. du Pont de Nemours & Co.

W. Ray Bell was reelected president of The Association of Cotton Textile Merchants of New York, at a directors' meeting held Feb. 10. **John C. Hughes, Jr.,** of McCampbell & Co., Inc., was reelected treasurer for the ensuing year. **William J. Gallon,** of J. P. Stevens & Co., Inc., was elected the new vice-president of the Association. To serve with these officers as an executive committee were named: **George P. Ray,** of Riverside & Dan River Cotton Mills; **Charles A. Sweet,** of Wellington Sears Co.; **Frederick A. Williams,** of Cannon Mills, Inc. The following were elected to serve as directors for three years: **Floyd W. Jefferson, Sr.,** of Iselin Jefferson Co.; **Charles O. Sweet,** of Wellington Sears Co., **John K. Witaker,** of Hesslein & Co., Inc., and **Frederick A. Williams,** of Cannon Mills, Inc.

Wm. Sirota has resigned as assistant to the president of the Interwoven Stocking Co. New Brunswick, N. J., it is announced.

B. L. Fisher has been elected president of Angle Silk Mills, Rocky Mount, Va., succeeding **J. P. Pell** who will continue as treasurer and general manager.

Joseph Meierhans, chief of the technical department of Farr Alpaca Co., Holyoke, Mass., has sailed for Europe on an extensive tour of the textile centers where he will study blend fabrics, especially the spun rayon and wool blends.

Martin R. Porter has been elected president of New Braunfels (Tex.) Textile Mills. Other officers are: vice-presidents—**James Cox** and **Walter Dillard, Jr.;** secretary—**Harry Wagenfuehr;** treasurer—**Emil Fischer;** assistant secretary—**Howard McKenna** and assistant treasurer—**R. B. Vickers.**

Raymond Thorp, vice-president and general manager, Read & Lovatt Mfg. Co., commission throwsters, Weatherly, Pa., has resigned. He remains as director of the company.

F. A. Sherrill was elected president of Statesville (N. C.) Cotton Mills, to succeed the late William Wallace, at the

TEXTILE CALENDAR

- *National Knitted Outerwear Association, annual meeting and dinner, Hotel Astor, New York, March 22, 1938.*
- *Textile Exposition and Style Show, North Carolina State College, Raleigh, N. C., Apr. 21, 1938.*
- *Knitting Arts Exhibition, Commercial Museum, Philadelphia, April 25 to 29, 1938.*
- *National Association of Hosiery Manufacturers annual convention, Commercial Museum, Philadelphia, April 27, 1938.*
- *Underwear Institute annual convention, Commercial Museum, Philadelphia, April 28, 1938.*
- *American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., June 27 to July 1.*

annual meeting of the stockholders. Other officers who were elected were **Isidore Wallace,** vice-president, **F. B. Bunch, Sr.,** secretary-treasurer, and **W. C. Sykes,** superintendent.

Luther H. Hodges, who was recently made general manager of the Manufacturing Division of Marshall Field & Co., has had 19 years of continuous service in that division, instead of 10 years as stated in these columns last month through a typographical error.

A. T. Quantz, formerly associated with the Glen Raven Silk Mill, Burlington, N. C., has been appointed manager of the new A–Q Silk Mill, Timmonsville, S. C., which starts operation April 1.

J. Herbert Hamilton, for many years mechanical superintendent of the Farr Alpaca Co., Holyoke, Mass., has resigned to accept a similar position with the Lewiston (Me.) Bleachery and Dye Works.

Thomas F. Lamarre has been named night superintendent at the York Mills, Saco, Me. He was formerly overseer at the Androscoggin Mill in Lewiston.

Joseph H. Sanders, former superintendent of the Springstein plant of Springs Cotton Mills and transferred 10 months ago to general superintendent of the Chester (S. C.) plant, has returned to his post at the Springstein plant.

H. W. Pittman, for many years personnel director of Bibb Mfg. Co., Macon, Ga., has been appointed assistant to **W. D. Anderson,** president. **Miss Annie Moore Daughtry,** formerly public welfare director, was appointed personnel director.

Harry M. Carr has been named superintendent of the Dartmouth Woolen Mills, Claremont, N. H., succeeding **F. Leonard.**

Charles F. McGill of Lisbon Centre, Me., has been placed in charge of the finishing department at the Wyandotte Worsted Mill, Rochester, N. H.

W. M. McDaniel, superintendent of the tufting department of the Valway Rug Mill, a unit of the Callaway Mills, LaGrange, Ga., has resigned to join the Murfreesboro (Tenn.) plant of the Blue-Bell Globe Mfg. Co., overall manufacturers.

Russell B. Newton, who has been superintendent of the Bibb Mfg. Co's. plant in Bibb City, Ga., has become chief executive officer of the company in Columbus, Ga., with supervision of all operations at Bibb City. He will be assisted by **S. P. Jenkins,** who will supervise tire fabric production.

A. A. Oliver has become superintendent of the Algodon Mfg. Co., Bessemer City, N. C.

John F. Ford has become superintendent of the Glencoe Mills, Burlington, N. C.

Eugene C. Gwaltney, acting agent for Bibb Mfg., Co. at Columbus, has returned to the main offices at Macon, Ga. **Charley Ridley** has been appointed overseer of opening, picker cards and combing at the Bibb City plant of the same company.

W. B. Shannon, formerly of Spray, N. C., has become overseer of weaving at the Highland Park Mfg. Co., No. 3 plant, Charlotte, N. C.

"TEXTILE PERSONALITIES"

Scott Roberts

Scott Roberts and his favorite niece, Miss Diana Robinson.

AT last we have discovered a textile manufacturer who entered the textile industry by way of the newspaper business! He is Scott Roberts, of Anniston, Ala., and he comes from a line of newspaper folks. His father, the late Albert Roberts, was editor of the *Chattanooga (Tenn.) Rebel* during the Civil War and later founded two dailies, before becoming consul general to Canada under the Cleveland administration. Mr. Roberts' own experience consisted of six years in editorial and business capacities on papers controlled by his family in Nashville, Tenn. Deciding to leave the newspaper field while still a young man, he took a fling at mining and cotton-seed oil before finally settling down as head of Adelaide Mills, which position he still holds. For a quarter of a century he has been head of the Cotton Manufacturers Association of Alabama and as such has been extremely active in affairs of the industry. One of Mr. Roberts' best jobs has been his part in making the industry aware of the importance of sound public relations. On the personal side, he is a person of many interests whose hobbies include music, tennis, and the cultivation of tropical lilies. Widely read, his favorite author is Thomas Henry Huxley, the scientist, who incidentally was his uncle. Other literary relatives include the contemporary writer, Aldous Huxley, a cousin.

Jefferson H. Robbins, overseer of warp spinning of the Eureka plant of the Springs Cotton Mills, Chester, S. C., was recently transferred to overseer of the No. 1 spinning plant of the Gayle plant at Chester.

J. S. Foster is now overseer of weaving at Brandon Corp., Woodruff, S. C. His former position of second hand in weaving has been filled by **H. T. Brockman.**

T. S. Crow, formerly overseer of carding at Oconee Mills, Inc., Westminster, S. C., has assumed a similar position with Watts Mills, Laurens, S. C.

John S. Chaya of Hazleton, Penn., has been appointed plant manager of the Duplan Silk Corp.'s new $250,000 rayon weaving unit at Grottoes, Va.

Dennison Walker, who is 93 years old, a former superintendent of the Warren Woolen Co. at Stafford Springs, Conn., recently was presented with a *Boston Post* cane in recognition of his being the oldest male resident of Ware, Mass.

Homer Neil, who is now 79, and has been for 60 years an employe of the Gardiner Hall, Jr., Thread Co. of Willington, Conn., for 40 years head of the concern's finishing department, was given a testimonial dinner by the corporation Feb. 4. **William R. McBee,** manager of the plant, was toastmaster and nearly 200 persons attended. Recognition also was paid to four other employees who have completed 50 years of service at the plant.

R. W. Schrimshire, formerly night overseer of spinning at the Swift Mfg. Co., Columbus, Ga., has become overseer of spinning at the Jordan Mills, Inc., also of Columbus.

G. C. Rambow has resigned as overseer of spinning at the No. 5 plant of the Marlboro Cotton Mills, Bennettsville, S. C., and has become third hand in the card room at the Sibley Mfg. Co., Augusta, Ga.

H. T. Mahaffey, formerly of Clanton, Ala., has become supervisor of the sample production department, Callaway Mills, LaGrange, Ga.

R. E. Henderson has been appointed overseer of spinning at the Bibb City plant of the Bibb Manufacturing Co., Macon, Ga.

C. W. Burrum, formerly of the Lindale, Ga., plant of the Pepperell Mfg. Co., is now overseer of weaving and slashing at the Sibley Mfg. Co., Augusta, Ga.

J. Gaius Halsey, who has been superintendent of the

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Bond Street division of William Skinner & Sons, Holyoke, Mass., for the last five years, has retired.

J. J. Moore has become superintendent of the Wilson Hosiery Mills, Burlington, N. C. He was formerly assistant superintendent of the knitting division of the Wiscassett Mills, Albemarle, N. C.

Leon Seigner, who has been connected with the Culpepper, (Va.) Silk Mill for some time has been appointed superintendent succeeding **T. R. Connlain,** who has resigned after holding the position for 17 years.

T. G. Gray has become superintendent of unit No. 3 at the Chadwick–Hoskins Co., Charlotte, N. C.

Callie W. Wilbanks, has been made general superintendent of the Gayle plant of Spring Cotton Mills, at Chester, S. C.

H. W. Wade has become secretary-treasurer of the Standard Hosiery Mills, Inc., Burlington, N. C.

Edward L. Crane, Marblehead, Mass., is president of the recently organized Pataganset Finishing Co., East Lyme, Conn. Other officers are: vice-president, James A. Newby, Dumont, N. J.; and secretary-treasurer, George M. Charbonneau, Norwich, Conn.

Don H. Curtis, former agent of the Willimantic, Conn., mills of the American Thread Co., has been appointed agent of the Summit Thread Co.'s plant at East Hampton, Conn., succeeding **Lloyd E. Cone,** resigned.

Albert C. Langshaw, director and vice-president in charge of sales of the Dartmouth Mills, Inc., New Bedford, Mass., has resigned his position, effective Mar. 1. Formerly associated for 20 years with the former Dartmouth Mfg. Co., he was named an officer of the new organization by the Powdrell interests three years ago.

Clyde E. A. Keene, has become superintendent of the Thomas Mills, Inc., High Point, N. C.

Obituary

Louis Hirsch, aged 65, president, Louis Hirsch Textile Machines, Inc., New York, N. Y., agents for Karl Lieberknecht full-fashioned hosiery machines, died Feb. 12 in New York. He came to this country from Germany, and in 1908, after service with textile firms, he established himself in the machinery business here; he won wide recognition as an authority on knitting machines.

Louis Hirsch

Otto A. Schreiber, aged 69, who retired in 1918 as senior partner of Cox & Schreiber Co., woolen manufacturers, New York, died Feb. 7 at his home in Summit, N. J.

Joseph Dempsey, aged 58, selling agent for woolen mills including Bush Woolen Mill, Dresden, O., and other firms, died Feb. 6 at his office in the American Woolen Building, New York.

Clinton Phelps aged 61, president and general manager, Sherman (Tex.) Mfg. Co., died recently at his home South Travis, Tex.

Will B. Anderson, manager, Framingham, Mass., office of Barber-Colman Co., textile machinery manufacturers, died recently in that city; he had been with the company 33 years.

J. W. Cannon, 3rd, aged 22, grandson of J. W. Cannon, founder of Cannon Mills, Kannapolis, N. C., was killed Feb. 13 in an airplane accident at Aiken, S. C.

Harry M. Gwyn, aged 63, former president, Cadet Hosiery Mfg. Co., Philadelphia, died Feb. 8, at his home in that city.

Ralph P. Hinchman, aged 77, formerly senior partner of Hinchman, Vezin & Co., hosiery commission merchants, New York, died recently in New York.

Stacy D. Arrowood, aged 52, for many years treasurer of Cannon Mills, Kannapolis, N. C., died Feb. 14, at Charlotte, N. C.

James A. Hayes, Jr., associated with James E. Mitchell

& Co., cotton yarns Philadelphia, died Feb. 6, in that city.

Charles Schofield, aged 76, president, Wm. Schofield Co., textile machinery, Philadelphia, died recently at Bryn Mawr, Pa.

John Grimshaw, aged 90, co-founder of Grimshaw Bros. Silk Co., veteran silk firm of Paterson, N. J., died Feb. 17, at his home there.

T. F. Goodsell, president and treasurer, Goodsell Roll Covering Co., Manchester, N. H. died there Feb. 14. He was associated with Amoskeag Mfg. Co. for 40 years, 20 years as superintendent.

Fred H. Robinson, aged 61, for 33 years superintendent of Morowebb Mills, Dallas, Tex., died at his home there recently.

Rudolph Schreiber, former president of Allentown (Pa.) Knit Fabrics Co. and more recently head of Stand Ware Products Inc., New York, died recently.

Robert C. McFadden, aged 63, former superintendent of various New England mills including Whitman Mills, New Bedford, Mass, and Suncook (N. H.) Mills, died recently at New Bedford, Mass.

James B. Heritage, Sr., aged 88, Burlington, N. C., for 40 years manager of the Windsor Cotton Mills there, now known as the King Cotton Mills, died Feb. 14.

AN INVENTOR

Charles Gegauff who was connected for many years with the Societe Alsacienne des Constructions Mechaniques, died at Mulhouse, France, on Jan. 20. Mr. Gegauff is noted for his many inventions which resulted in improvement of cotton and worsted combers, worsted drawing equipment, and spinning machines. His inventive genius has been compared with that of Heilman, inventor of the Heilman principle of combing cotton fiber, which was adopted by practically all makers of cotton combers. Mr. Gegauff made an important change in the design of combers, retaining the Heilman rectilinear principle, but substituting for the Heilman nipper and segment, a swinging nipper independent of the combing cylinder. By this method, the fibers were presented directly by the nipper through the needles of the top comb to the detaching rollers, which were in fixed bearings. This invention was first applied to the single-head combing machine made by the Societe Alsacienne, hundreds of which were sold in the late 90's and early 1900's. Frank Nasmith was not long in recognizing the importance of this invention, and adopted it on his multi-head machine. Then came the Tunstall double-sided comber, in which the same principle is adopted. Mr. Gegauff then applied the same principles to worsted combers of the French type. The result has been the production of what is known in the trade as S.A.G. (Societe Alsacienne-Gegauff) Machine. Mr. Gegauff considered the development of this machine to be the crowning event of his life. He had no ambition to accumulate wealth, but cared more about his work in improving machinery than anything else, this being the prime pleasure of his life.

Ward Thoron

Ward Thoron, aged 71, president and director of the Dwight Mfg. Co., Boston, Mass., died at his home in that city on Feb. 27. He was past president of the National Association of Cotton Manufacturers and of the Arkwright Club; director of the Nashua Mfg. Co., and at one time auditor of the American Security & Trust Co., and chairman of the executive committee of the Washington (D.C.) Railway & Electric Co. He was born in New York City and educated at Fordham and Harvard Universities. He practised law in Washington for some time and for a period was treasurer of the Merrimack Mfg. Co., Lowell, Mass. In private life he was a noted authority on Latin classics and for years was a member of the overseers' committee on classics at Harvard.

Col. Jeremiah Beall, aged 67, retired head of Taylor, Clapp & Beall, New York, died Feb. 17.

W. Percy Simpson, aged 67, former president and treasurer, Eddystone (Pa.) Mfg. Co., died in Honolulu recently.

Ralph M. Odell, aged 54, formerly connected with the Odell Mfg. Co., Concord, N. C., died Feb. 19 in New York. For many years with the Bureau of Foreign and Domestic Commerce, he was at the time of his death New York manager for Kerr Bleaching & Finishing Works.

James R. Savery, aged 72, for 38 years treasurer of the Berkshire Woolen Co., Pittsfield, Mass., died Jan. 29 there.

Charles G. Sargent, president of C. G. Sargent's Sons Corp., Graniteville, Mass., died recently.

J. O. V. Stetten, aged 62, president of Stetten Textile Felt Co., Philadelphia, died Feb. 26.

M. T. Bass, aged 72, president of the Tennessee Woolen Mills, died recently at his home in McMinnville, Tenn.

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TEXTILE WORLD'S
KNIT GOODS
Show Number
will be published
April 12

MILL NEWS

Cotton Mill News

Bama Cotton Mills, Enterprise, Ala., have begun erection of a one-story addition. Cost estimated over $30,000, with equipment.

Montgomery, Ala.: A new cotton weaving plant will be installed here in the buildings formerly used by the Montala Cotton Mills according to Chamber of Commerce.

Enterprise Mfg. Co., Augusta, Ga., is installing long-draft roving and spinning equipment.

Wynnville Mfg. Co., Lawrenceville, Ga., formerly the Lawrenceville Cotton Mill, has resumed operations after being closed down for some months.

American Thread Co. will continue to operate its Main Street division at Holyoke, Mass., Mayor Yoerg announced after a conference with Percival F. Howe, vice-president of the company.

Massasoit Co., Fall River, Mass., chartered under Delaware to take over certain assets of the Massasoit Mfg. Co., will operate a group of four mills on cotton specialties of waste yarn similar to the product of the original company.

Highland Park Mfg. Co., Charlotte, N. C., during the last year, has re-equipped its No. 3 plant. All of the spinning, carding and weaving machinery has been replaced with the newest type.

Mill Fabrics Corp., Charlotte, N. C., recently organized with capital of $10,000, plans operation of a cotton mill. New company is headed by Alexander F. Ullrich, Charlotte.

Threads, Inc., Gastonia, N. C., and **Superior Yarn Mills,** Mount Holly, N. C., have installed hot waxing attachments on their winders, made by Gaston County Dyeing Machine Co.

Minneola Mfg. Co., Gibsonville, N. C., has completed a program of revamping at a cost of $75,000.

A. Alex Shuford, Hickory, N. C., of the Shuford group of mills, has plans under way for the disposal of the company's mill villages, and is fostering a plan for the operatives to own their own homes.

Rhodes-Rhyne Mfg. Co. and **India Creek Mills,** both of Lincolnton, N. C., have been acquired by Robert P. Dicks of Rockingham, N. C. He has purchased controlling interest in the former and full ownership of the latter.

Seminole Mills, Clearwater, S. C., mill building has been revamped and the machinery has been rearranged.

Greenwood (S. C.) **Cotton Mills** have completed the installation of 224 Diehl 10 hp. motors on its spinning frames.

Springs Cotton Mills, Lancaster, S. C., plan construction of a new top story to Mill No. 4, in which preparatory machinery will be installed.

Eureka Cotton Mill, Englewood, Tenn., began operating under new management on Feb. 1. Harry Germaine, manager of the mill for the last two years, has been succeeded by Jack Burns and Harry Burns of Sweetwater, Tenn.

Bauers Ltd., Waterloo, Ont., manufacturers of cotton felts, twines, yarns, etc., has carried out a small expansion program, including erection of a building 60 x 80 ft., of brick and steel.

Wool Mill News

Elko Co., Elk Mills, Md., has been organized for weaving tapestries for upholstery purposes and not as incorrectly stated in these columns last month for dyeing and finishing.

Jackson County Mills, Pascagoula, Miss., will have a 115,000 gal. steel water tank, the contract having been awarded to the R. D. Cole Mfg. Co., Newnan, Ga., at a contract price of $9,085.

Gonic Mfg. Co., Rochester, N. H., has installed a large General Electric turbine, enabling the plant to produce all its own power.

Mohawk Carpet Mills, Inc., Amsterdam, N. Y., plans improvements in mill to replace recent damage caused by flood waters, including that at Mill No. 4, used for a warehouse for several years, which collapsed.

Louis Kraemer & Co. (Carl H. Boas, receiver) Stoney Brook Mills, Pa., have been ordered to suspend operations by the court and to sell their cloth inventory.

Erben-Harding Co., Tacony, Philadelphia, Pa., sold part of its preparatory machinery at auction on Mar. 3. The firm will continue spinning as heretofore.

Woonsocket (R. I.) **Woolen Mills** have closed their plant permanently and property of the company will be liquidated.

Standard Felt Corp., 1074 St. Urbain St., Montreal, Que.,

MILL NEWS

plans rebuilding of portion of warehouse unit at plant, recently destroyed by fire; loss over $20,000.

Rayon & Silk Mills

Goodwater (Ala.) citizens are working on plans for the establishment of a rayon plant.

Industrial Committee of the Willimantic (Conn.) Chamber of Commerce, Stanley J. Sumner, chairman, heads a project to organize a community committee to purchase and operate the local plant of Windham Silk Co., now being liquidated, to retain the mill for the municipality.

Griffin, Ga., will soon have a silk throwing plant according to R. P. Shapard, Jr., president of Spaulding Knitting Mills. Operations will begin May 15.

Aponaug Mfg. Co., West Point, Miss., has begun production in recently completed one-story mill addition, and will use the unit for rayon manufacture.

Z-B Yarn Mills, Inc., West New York, N. J., have sold their mill building at 602-8 Eleventh St., West New York, on site, 108 x 200 ft., to the Shellmar Products Co., Chicago, Ill.

Phoenix Silk Mfg. Co., New York, N. Y., with mill at Allentown, Pa., has completed its plans for reorganization, and is securing a loan of $150,000 from RFC.

Duplan Silk Corp., New York, N. Y., has purchased looms and accessories from the Crompton & Knowles Loom Works, Worcester, Mass., for its new mill at Grottoes, Va., and installation of the equipment is now in progress. The plant will cost about $500,000. Duplan will sell its Hazelton, Pa., plant.

Reidsville (N. C.) **Rayon Mill,** from which all of the looms have been removed to other plants of Burlington Mills, will begin operations in March as a throwing plant for weaving yarn.

Union National Mill Co., Springfield, Ohio, plans expansion to involve expenditure of $35,000 or more.

Cands Fabric Co., has been organized and incorporated in

Recent Financial Reports

Profit and loss statements by a number of textile companies follow:

	Fiscal Period or Year 1937	1936
Cotton:		
Nashawena Mills (10 months to Dec. 31)	$62,143	
Nannkeag Steam Cotton Co. (to Nov. 30)	341,868	434,854
Sagamore Mfg. Co.	222,247	
Brighton Mills	31,567	54,123
Nonquitt Mills (gross)	224,773	251,773
Graniteville Co.	215,066	345,671
Cabot Mfg. Co.	—129,732	
Riverside & Dan River Cotton Mills	1,270,464	
Cosmos Imperial Mills (Canada)	193,176	173,808
Hamilton Cotton Co. (Canada)	111,779	109,138
Woods Mfg. Co. (Canada)	21,659	207,082
Charlton Mills	—257,438	
William Whitman Co.	322,709	341,000
Wool:		
Cleveland Worsted Mills Co.	—$51,673	$139,968
Sanford Mills (to Nov. 30)	1,432,286	1,968,804
Russell Mfg. Co. (to Nov. 30)	210,585	—362,340
N. J. Worsted Mills	1,461	13,875
Bigelow-Sanford Carpet Co.	562,613	1,672,206
Arlington Mills (to Nov. 30)	342,464	719,524
Rayon & Silk:		
Tubize-Chatillon Corp.	$1,439,939	$1,047,006
Courtaulds, Ltd. (of England)	£2,373,892	£2,296,458
Belding Heminway Co.	$490,770	$563,095
New Process Rayon, Inc.	—7,539	—13,789
Century Ribbon Mills	69,287	155,091
Sidney Blumenthal & Co.	—545,227	521,848
Riverside Silk Mills (Canada)	79,234	
Canadian Celanese, Ltd. (Canada)	1,266,702	1,397,103
Knitting:		
Phoenix Hosiery Co.	$135,980	$53,007
Gotham Silk Hosiery Co.	351,159	405,651
Wayne Knitting Mills	239,028	178,522
Rollins Hosiery Mills	116,910	—40,826
Oscar Nebel Co.	—6,461	—38,523
Davenport Hosiery Mills	231,260	183,034
Bradley Knitting Co.	67,133	121,012
Winsted Hosiery Co.	63,818	82,120
Munsingwear, Inc.	193,101	
Holeproof Hosiery Co.	6,010	—38,800
Real Silk Hosiery Mills	20,583	116,614
Monarch Knitting Co. (Canada)	64,033	55,736
Miscellaneous:		
Amoskeag Industries (to Aug. 31)	$301,138	
James Talcott, Inc.	446,565	$569,625

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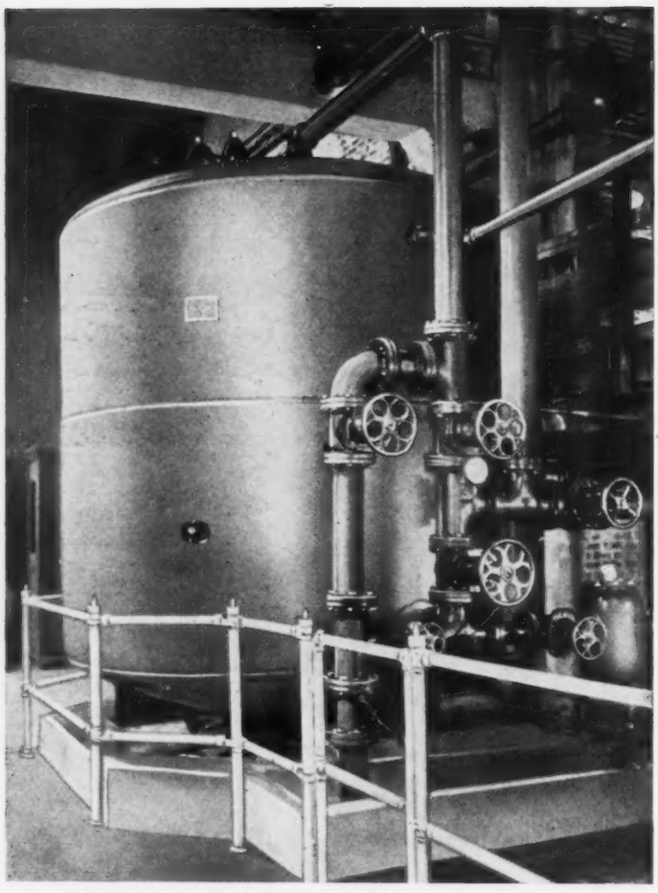

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The INVERSAND Water Softener is not an expensive machine. For example for Burlington, N. C. or Providence, R. I. or Paterson, N. J. city supplies, a 50,000 gallon capacity INVERSAND Water Softener can be bought for less than *$1,000.00*.

INVERSAND softening is not expensive. 1000 gallons of the average analysis water supply can be made 100% SOFT by an INVERSAND Water Softener at a cost of less than 2 cents.

Invest in an INVERSAND Water Softener now so that you, too, can have the advantages of a uniform supply of clear 100% SOFT water.

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CLAYTON, NEW JERSEY

WATER PURIFICATION PLANTS

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MILL NEWS

Catasaqua, Pa., with a capital of $20,000, to engage in the textile manufacturing business.

J. H. Frederick, of Emaus, Pa., has leased the silk mill at Perkasie, Pa. Production has started.

Bellfield Mills have been established at 2112 East Wishart St., Philadelphia by W. P. Atherton and J. N. Cooper.

Williamsport (Pa.) **Textile Co.** has acquired a site upon which it is planned soon to build a new plant unit. Company recently completed a substantial addition to its main plant, soon to be placed in operation.

Royal Weaving Co., Pawtucket. R. I., has been closed for an indefinite period.

Rhode Island Plush Mills, Woonsocket, R. I., have plans under way for the establishment of a new mill in the South.

Viscose Corp. of Virginia, Roanoke, Va., affiliated with the American Viscose Corp., New York, N. Y., is pushing erection of new mill at Front Royal, Va., and will have main one-story unit, 400 x 2,000 ft., ready for equipment installation in May. Plant will cost over $1,500,000, with machinery. It is scheduled to be ready for service in January, 1939. Another similar unit will be built on adjoining site at a later date.

Radford (Va.) **Weaving Mill,** a unit of Burlington Mills Co., Burlington, N. C., has begun operations.

Courtaulds (Canada) **Ltd.,** Cornwall, Ont., have announced completion of construction on No. 4 unit. Delivery will shortly be made from England of the machinery, comprising 50 new viscose yarn spinning machines and other equipment. Full production rate is 15 million pounds of yarn annually.

Quebec Rayon Mills, Sherbrooke, P. Q., Canada, proposes erection of addition to quarters recently leased.

Knitting Mill News

Westport (Conn.) **Knitting Mills, Inc.,** has been incorporated by Harold H. Fein, George B. Duckowney and Joseph Tenner, all of New York.

Spalding Knitting Mills, Griffin, Ga., will open their new silk throwing plant about May 15. About $50,000 in new machinery is being installed.

Nahunta (Ga.) **Hosiery Mills,** newly formed, will begin soon manufacturing women's hosiery. Joseph B. Strickland formed the firm.

Shirley, Maine.—A home knitting industry has been launched here using 12 imported machines. Product is socks and scarfs and the venture has met great success.

Maryland Penitentiary, Baltimore, Md., is planning a knitting plant to make stockings and underwear.

Harris Silk Hosiery Co., Springfield, Mass., seeks reorganization under section 77B of the bankruptcy act.

Newton, Miss. — Town Council is arranging bond issue of $50,000 approved at a special election, to be used for the erection of a hosiery mill.

Ringless Hosiery Co., Paterson, N. J., and its affiliate, Beau Monde Hosiery Mills, are in hands of receiver.

Lillian Hosiery Mills, Albemarle, N. C., have completed a program which included expansion of the plant, new machinery installations, etc.

Glenn & Coble Knitting Mills, Burlington, N. C., has been established by J. M. Glenn and R. A. Coble, to manufacture half hose.

Hatch Hosiery Mills, Belmont, N. C., will construct a large addition to double size and capacity of present plant, now producing 2,000 to 2,500 doz. pr. weekly.

May Hosiery Mills, Inc., Burlington, N. C., has completed addition to the finishing department, measuring 24 x 100 ft. This was built for increasing storage space.

Sellers Hosiery Mills, Burlington, N. C., have constructed an addition in which full-fashioned hosiery machinery is being installed. The company has made circular seamless hosiery and in the future will make full-fashioned hosiery also.

Graham Fashioned Mill, Graham, N. C., incorporated by Tom Neal and Clay Holt, of Burlington, has acquired the former building of the Scott & Baker Knitting Mill for the manufacture of women's crepe hosiery.

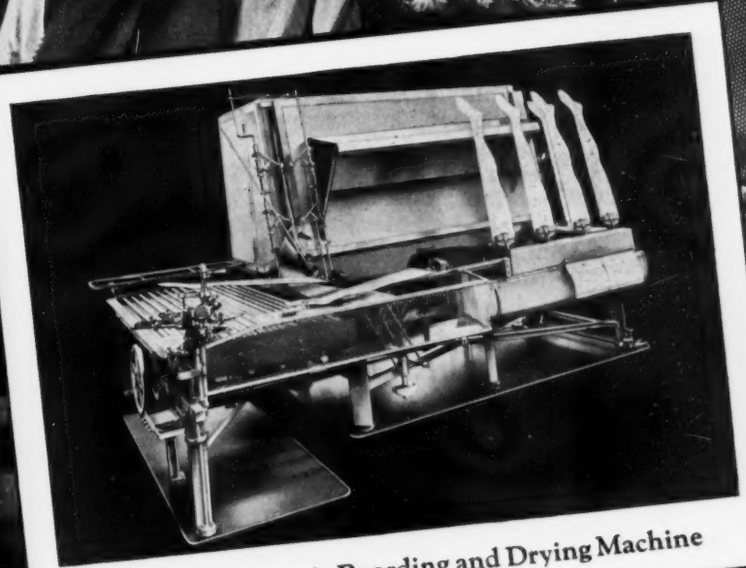
Huntley-Jackson Co., High Point, N. C.—Negotiations are being closed by Dr. W. L. Jackson and associates, for the purchase of this mill for a stated consideration of $47,500.

Hudson Silk Hosiery Co., Charlotte, N. C., is construct-

PROCTOR *Automatic* BOARDING MACHINE

Produces The Smooth, Uniform Finish Demanded in *Modern Hosiery*

The demand is greater this year than ever before for sheer perfection in hosiery. Today's manufacturer must meet this high quality demand and at the same time keep his production costs at a new low level. The modern Proctor *Automatic* Boarding and Drying Machine makes it possible for him to do both of these. Special features uphold the most exacting quality requirements, and production rates 66% to 100% *higher* are assured. It is a fact, that 2 operators of average ability can, with ease and comfort, produce *two thousand, five hundred and forty-four* pairs of women's full-fashioned, picot edge silk hosiery in *one* 8-hour day on *one* Proctor *Automatic* Boarding and Stripping Machine! Remember, too, the important fact that this new Proctor & Schwartz *Automatic* Boarding, Drying and Stripping Machine occupies just 9½ x 11½ feet of floor space. Bulletin No. 240 will tell you more about it. Write.



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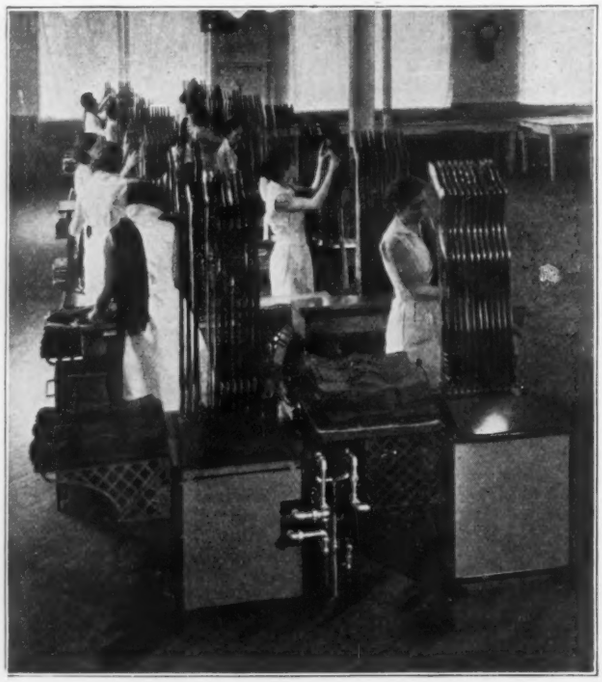
HOSIERY FINISHING



A PRODUCTION in excess of 1,000 dozens full fashioned ladies' hosiery is being finished daily on the 13 PARAMOUNT DUAL HEAT MACHINES operated in this mill during one eight-hour shift—and the character and quality of the work is incomparable since the PATENTED DUAL HEAT principle of drying is positive protection against "baking" delicate silk fabrics. Not only does the PARAMOUNT DUAL HEAT MACHINE contribute outstanding features of production and quality, but it represents—

1. Less investment per dozen
2. A minimum of floor space occupancy
3. Less power and steam consumption per dozen
4. Ideal room and working conditions
5. Less maintenance
6. Ease and comfort to the operator
7. Simplicity and durability of construction

Any one feature alone, of the numerous advantages which the PARAMOUNT DUAL HEAT MACHINE offers, will justify a change to this superior method of hosiery finishing.

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PARAMOUNT TEXTILE MACHINERY CO.
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MILL NEWS

ing additions to the two local plants, at a cost of $50,000.

Huffman Full-Fashioned Mills, Inc., Morgantown, N. C., have been organized with capital of $250,000 by Robert O. Huffman, treasurer of the Morganton Full-Fashioned Hosiery Co., and Garrou Knitting Mills, Inc., both Morganton, to operate a local mill.

R. L. James & Son, Marion, N. C., have begun a program to provide for increased capacity. Mill is now running on a weekly production basis of 8,000 doz. pairs of half-hose.

Siler City (N. C.) **Hosiery Mills Co.,** newly organized concern owned by Siler City interests, backed by the Mock-Judson-Voehringer Co., Greensboro, N. C., has begun the construction of a mill building, one-story, with C. M. Guest & Sons of Anderson, S. C., and Greensboro, N. C., in charge. The building, 110 x 210 ft., will represent more than $40,000; machinery will cost about $200,000.

Statesville (N. C.) **Hosiery Mill,** idle for two months, has been purchased by J. O. McAuley and was put back into operations Feb. 21.

Pilot Full-Fashioned Hosiery Mills, Inc., Valdese, N. C., is constructing an addition to the finishing department of the plant. It will measure 65 x 70 ft., and will be completed about May 1.

P. H. Hanes Knitting Co., Winston-Salem, N. C., has completed the construction of a new winding room, measuring about 43 x 160 ft.

Logan Knitting Mills, Inc., Dayton, Ohio, have been organized to operate a local mill.

Oscar Nebel Co., Hatboro, Pa., has begun construction of a unit at Verona, Va. The mill building will measure 130 x 167 ft. and will utilize glass brick. The new unit will be headquarters for the company.

J. & J. Hosiery Mill, Philadelphia, Pa., recently organized, has begun operation of a new knitting mill in property recently leased at 5438 Ella St.

Triumph Hosiery Mills, York, Pa., awarded a contract to Dietz A Smith for construction of a one-story brick and steel addition to its plant.

A-Q Silk Mill, Timmonsville, S. C., new tricot knitting mill, will start operations in the near future. J. Ed Anderson and A. T. Quantz will be the operators.

Excel Hosiery Mills, Union, S. C., has bought seamless equipment from Excelsior Mills which has liquidated that department (though continuing full-fashioned, as heretofore). H. M. Arthur is president of Excel, W. N. Bradburn, vice-president, J. L. Hines, superintendent.

Norris Hosiery Mills, Cleveland, Tenn., have begun operations with 10 machines and auxiliary equipment. O. N. Norris of Chattanooga, Tenn., is in charge.

Tennessee Prison, Nashville, Tenn., has started a new knitting unit.

Cape Charles (Va.) **Hosiery Mills Inc.,** with maximum capital of $50,000, has been chartered by Virginia to manufacture and deal in hosiery. George J. Yarwood, of Philadelphia, Pa., is president.

Sale Knitting Co., Martinsville, Va., recently chartered with capital of $250,000, as a division of the Pannill Knitting Co., same place, has begun operations in new five-story mill on Moss St.

Phoenix Hosiery Co., Milwaukee, Wis., has let general contract to the Dahlman Construction Co., Milwaukee, for remodeling and improving building at North Milwaukee and East Buffalo Sts.

Processing Plant News

Aspinook Corp., Jewett City, Conn., has been organized under Delaware laws, with capital of 200,000 shares of stock, no par value, to purchase and operate the local mill of the Aspinook Co., which recently voted to liquidate, following a shut-down. It is headed by B. R. Armour, New York, president of Hartford Rayon Co. Operations started Mar. 1.

Thomaston (Ga.) **Bleachery** has added machinery in space formerly used for storage.

Western Franklin Process Co., Chicago, Ill., an interest of the Franklin Process Co., Providence, R. I., has discontinued operations and property will be liquidated.

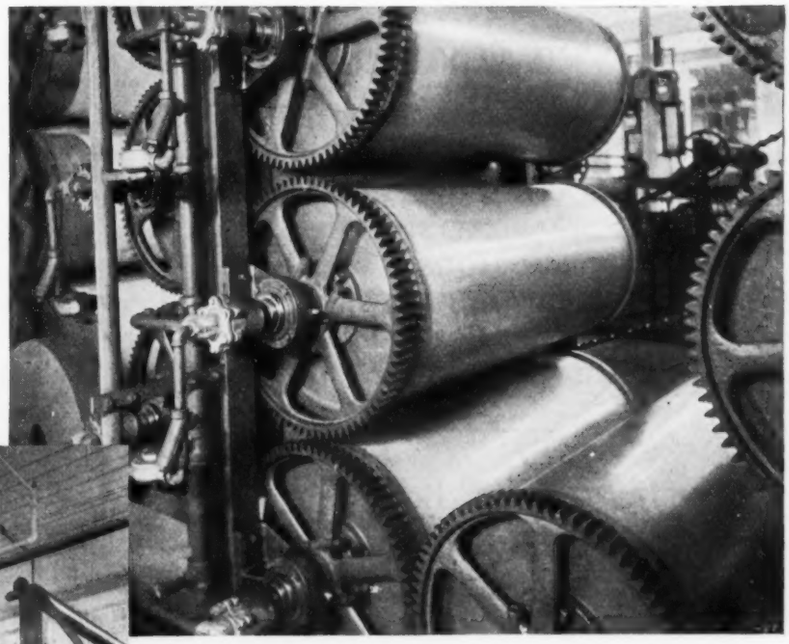
Imperial Screen Printing Co., Inc., Union Mill No. 3, Pleasant St., Fall River, Mass., has been chartered with capital of $50,000, to operate a textile print works. Edward P. Lakin is president, and Alfred S. Sherwin, treasurer.

Textile Dyeing & Printing Co., Fair Lawn, N. J., has closed its mill for an indefinite period.

SKF CONTRIBUTES

BEARING FLEXIBILITY

TO MODERN STACK DRYERS



VERTICAL STACK DRYERS BUILT BY
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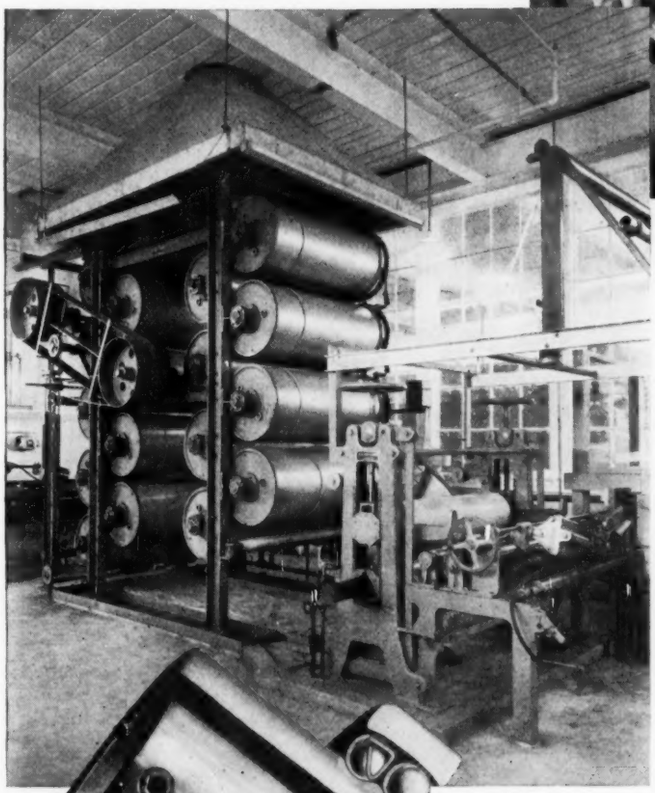

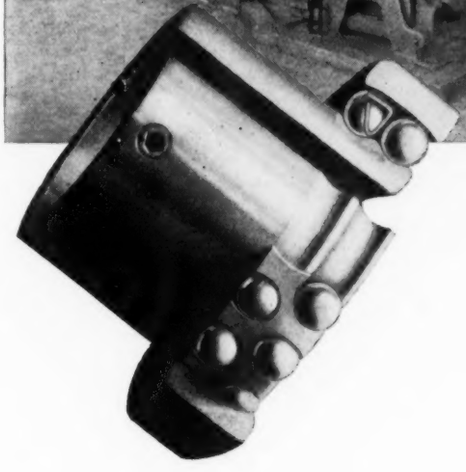

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Textile World's
PRE-VIEW
of the
34th Annual Knitting Arts Exhibition to be held in Philadelphia, April 25 - 29 will appear in the
KNIT GOODS SHOW NUMBER
to be published April 12th

New trends and developments in hosiery . . . underwear . . . outerwear . . . *an issue you won't want to miss.*

NEWS OF SUPPLIERS

(Continued from page 103)

Fairbanks, Morse & Co., Chicago, has moved its general offices to the modernized Fairbanks-Morse building at 600 S. Michigan Ave., Chicago. The company's new quarters have been completely remodeled including new facades, a new elevator system, attractive wood paneled elevator corridors, etc.

Barber-Colman Co. of Massachusetts announces that F. D. Taylor has been appointed manager to succeed the late W. B. Anderson. Mr. Taylor will take charge of the Framingham, Mass., office of the company about March 15.

McClave-Brooks Co., Scranton, Pa. announces that Walter Scott Elder, sales engineer, of 431 So. Dearborn st., Chicago, has been made sales representative for that territory and that G. G. VanTuyl, VanTuyl Co., 16701 Kinsman Rd., Cleveland, will represent the company in Northern Ohio.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. announces that James Boyd, formerly assistant eastern district manager, has been appointed eastern district manager succeeding H. F. Boe, who has become commercial manager of the company, with offices in Pittsburgh. Mr. Boyd's headquarters will be in New York, the Westinghouse Building at 150 Broadway. Mr. Boyd joined the Westinghouse company 21 years ago, as service engineer. After long and varied service, he was made assistant eastern district manager last May.

Thomas Grate Bar Co., Birmingham, Ala., manufacturers of grate bars of special design since 1910, has changed its corporate name to Thomas Foundries, Inc. The change was made to "serve industry more effectively" with the firm's established line of products. Officers and management policy remain unchanged.

Bakelite Corp. has placed on display at the Museum of Science & Industry, Rockefeller Center, New York, the "Bakelite Travelcade." Introduced this year is an asbestos material impregnated with Revolite, a textile waterproofing agent, for laundry roll covers; also for upholstery use.

Specialty Products Co., Jersey City, N. J., announces that Dr. Eugene R. Manning is now associated with that firm as director of research and development of new products used for processing textiles derived from cellulose.

Albert Palmer, author of the article on page 62 of this issue is a graduate of Harvard College, Class of 1920. He also attended Harvard Engineering School, Harvard Graduate School of Business Administration, and College of Technology at Manchester, England. Mr. Palmer started with Crompton & Knowles Loom Works in 1920. Although having the title of "Research Assistant to the General Manager," he has been the chief engineer behind the development of the new types of precision, automatic looms. He has contributed many articles to technical journals and has spoken repeatedly before textile societies. He is a member of the Executive Committee, Textile Division, American Society of Mechanical Engineers.